Public Works (1911) Department.

~~RAILWAYS.~~

G.O., No. 1397 / 1405 } J.

DATED 6-5-1911.

1385

The Notes
in this G.O. have been printed.

[Despatch Abstract.]

Electrical power by the Periyar falls and Smoking Rock falls on the Cauvery

Ordered that the G. of I be furnished with the views of this Govt on the application from Mr. R. H. Gasotte for a concession for the development of ——

Letter to the G. of I, P.W.D.

Rw 5 Bm / 16/5

MCL

[illegible]

Indexed.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

	No	Department.	Date.	G.O.	No.	Department.	Date.

Government of Madras.

PUBLIC WORKS DEPARTMENT.

IRRIGATION.

Recd.	1911.	*Enclosures*
Regd.		*Spare copies*

G.O., No. 139 I., 6th May 1911.

Electrical power by the Periyar falls and Smoking Rock falls on the Cauvery

Ordered that the Government of India be furnished with the views of this Government on the application from Mr. A. H. Garrett for a concession for the development of —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers:—

I

Letter—from A. H. GARRETT, Esq., 5 Gordon Place, St. Heliers, Jersey.
To—the Secretary to the Government of India, Public Works Department.
Dated—the 21st September 1909.

I have the honour to inform you that on the 7th instant I addressed a letter to the Secretary of State for India, enquiring whether concessions would be granted by Government for developing power by the Periyar at Koravanuth, and the Cauveri at the Smoking Rock falls in the Salem district.

2. In reply I was informed that any definite proposals I wished to make should in the first instance be submitted to the Government of India.

3. When Chief Engineer for Irrigation in Madras, and shortly before my retirement in 1905, I sent up a project for the development of electrical energy by the water issuing from the Periyar reservoir.

4. Previous to this, the possibility of utilising the water power available had been reported on by a Committee of Engineers in London, and Government decided that it would be unsafe to guarantee a continuous supply of water throughout the year.

5. In my scheme I endeavoured to show how this might be done and explained that although irrigation might occasionally suffer, it would on the whole benefit if my proposals were adopted.

6. The Inspector-General of Irrigation visited Madras and after an examination of my project on the spot, came to the conclusion that the consideration of the question of using the Periyar for power, should be postponed for another 50 or 100 years.

7. Since leaving India I have laid the whole matter before some Electrical Engineers, and we are confident that without in any way interfering with irrigation, but by simply using the water discharged from the Periyar tunnel during the irrigation season, power for industrial purposes could be successfully developed.

8. It is now about 15 years since the Periyar works were finished, and as Government seem to have decided against developing power themselves, I beg to enquire whether a concession would be granted to develop power for 50 years, and on what terms.

9. I may say that the energy obtained would probably be almost solely employed in the manufacture of Atmospheric Nitrate of lime, one of the best fertilisers known, and far more economical than those in general use.

10. With the power available from the Periyar it would be possible to manufacture about 15,000 tons of nitrate of lime, and as a demand for a much larger quantity is confidently anticipated, we should be glad to obtain a further concession to develop power at the Smoking Rock falls on the Cauveri in the Salem district.

11. The great drawbacks to a power scheme on either the Cauveri or the Periyar are the long distance of the power station from the railway; the fact that the manufacture of the nitrate could only be carried on for 8 or 9 months in the year, and in the case of the Periyar, the possibility of the supply being suddenly reduced in the interests of irrigation, or cut off altogether owing to an accident to the head sluice which has been known to interrupt the supply for a week or more.

12. In settling the terms on which a concession could be granted, I would respectfully urge that full consideration should be given to these disadvantages as well as to the fact that in granting this application, Government would not only be encouraging private enterprise but would be furthering its own aims, in assisting the ryot to adopt improved methods of agriculture.

13. In the event of Government being willing to grant the concession applied for on favourable terms, we should be prepared to furnish proof of our ability to finance the scheme, and put it in hand without any delay.

Letter—from H. M. WILLMOTT, Esq., Under Secretary to the Government of India, Public Works Department (Miscellaneous).
To—A. H. GARRETT, Esq., 5 Gordon Place, St. Heliers, Jersey.
Dated—Calcutta, the 30th November 1909.
No.—2003 M.

I am directed to acknowledge the receipt of your letter, dated the 21st September 1909, enquiring whether concessions would be granted by Government for developing power by the Periyar at Koravanuth and the Cauvery at the Smoking Rock falls in the Salem district, and in reply I am to say that a reference on the subject has been made to the Government of Madras.

No. 2004 *M., dated* 30*th November* 1909.

A copy, together with a copy of the letter to which it is a reply, is forwarded to the Secretary to the Government of Madras, Public Works Department, Irrigation Branch, with the request that, with the permission of His Excellency the Governor, the Government of India may be favoured with a report on Mr. Garrett's proposal.

2. In that report the location of the Cauvery Smoking Rock falls should also be stated.

(By Order.)

H. M. WILLMOTT,
Under Secretary to the Govt. of India.

II

R.O.C. No. 3027/09, dated 22nd February 1910.

G.O., No. 442 I., dated 9th May 1900.
„ No. 1292 I., „ 19th November 1904.

In forwarding the marginally-noted Government Orders regarding the Hogenkal falls, Salem district, the Chief Engineer for Irrigation has the honour to request the Superintending Engineer on Special duty to find out whether and if so how the fall available will be affected by the Cauveri Reservoir the water-spread of which extends right up to the bottom of the falls and may possibly reduce the fall available for power. A very early reply is requested.

C. A. SMITH,
Chief Engineer for Irrigation.

To the Superintending Engineer on Special duty.

III

Letter—from Colonel W. M. ELLIS, R.E., Special Superintending Engineer.
To—the Chief Engineer for Irrigation.
Dated—Madras, the 7th March 1910.
No.—78 I/216.

[Your No. 3027 of 1909, dated 22nd February 1910.]

From levels just taken, we find level of cross section river bed just above Hogankal falls + 807 to + 812.

Level of water in pool Salem side below falls 13th February 1910 + 749.

2. The F.S.L. of the reservoir is not fixed but it will probably be between 775 and 785 while the top of the parapet on the dam might go up to 795 G.T.S. datum.

IV

Telegram—from the Chief Engineer for Irrigation, Madras.
To—the Officer in charge No. 19 Survey of India Party, Bangalore.
Dated—the 4th July 1910.

"Can you give me separately approximate catchment areas of Pambayar and Periyar rivers above Periyar lake. If not please wire when this information is likely to be available."

V

Telegram—from the Officer in charge No. 19 Party, Bangalore.
To—the Chief Engineer for Irrigation, Madras.
Dated—the 9th July 1910.

"Approximate area of Periyar 230 miles Pambayar not known but exact area of Periyar and approximate area of Pambayar will be given next March."

Order—No. 139 I., dated 6th May 1911.

The following letter will be addressed to the Government of India.

[Here enter No. 140 I., dated 6th May 1911.]

(True Extract.)

H. E. CLERK,
Ag. Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation, } with copy of letter.
,, Revenue Department, }

Forwarded to the

(By Order.)

Deputy Registrar.

5

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

No. 140 I.

Irrigation.

LETTER—from

THE HON'BLE MR. H. E. CLERK,
Ag. Joint Secretary to the Government of Madras,
Public Works Department (Irrigation Branch),

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,
PUBLIC WORKS DEPARTMENT.

SIR,

I am directed to submit the following remarks in reply to the endorsement of the Government of India No. 2004 M., dated 30th November 1909, forwarding a copy of a letter together with the Government of India's reply thereto from Mr. A. H. Garrett, in which he applies for a concession for the development of electrical power at Kiravanuth from the water of the Periyár lake and at Hogenkal from the water of the "Smoking Rock" falls on the Cauvery.

2. Referring first to the Smoking Rock falls at Hogenkal, in the Salem district, I am to enclose copies of G.Os., Nos 441 I., dated 9th May 1900 and 1292 I., dated 19th November 1904, in which a description of these falls is given, and I am to say that recent investigations have shown that the effective fall at the place in question will be materially reduced by the contemplated reservoir on the Cauvery, proposals as to which have been submitted for the consideration of the Government of India with my letter No. 386 I., dated 3rd December 1910. In these circumstances it seems advisable to defer disposal of Mr. Garrett's application so far as regards those falls, at any rate, until the orders of the Government of India on the Cauvery reservoir scheme have been made known.

3. Referring to Mr. Garrett's proposal which relates to the Periyár, I am to invite attention to the correspondence ending with Mr. Thomson's letter No 2173-1, dated 1st December 1909. In that letter the Government of India agreed that the scheme drawn up by Mr. Chatterton for the establishment of a hydro-electric station on the Periyár would not have any prejudicial effect on existing irrigation. They considered, however, that before further steps were taken in regard to the suggested power scheme, its possible effects on future extensions of irrigation should be considered. They invited reference to the notes of the Inspector-General of Irrigation, dated 29th March 1906 and 11th November 1908, and they directed that the irrigational potentialities of the Periyár scheme should be fully considered before the possibilities of Mr. Chatterton's power scheme were investigated. With reference to these remarks, I am to observe that this Government are not at present in possession of accurate information as to the present catchment area either of the Periyár or of the Pambayar, which it is proposed to divert into the reservoir. That catchment area is at present under survey by a party deputed by the Government of India Survey department and it has been ascertained that the information sought will not be available for some months to come. Moreover, even if the additional supply which will be made available by the diversion of the Pambayar into the reservoir were known, the fact would still remain that, under existing agricultural practice, in the Madura district, water would not be required to be issued from the lake for irrigation during a period of about two months annually. Hence any scheme for continuous supply of power would still involve the issue of water at a period when it was not needed for irrigation; and there is no reason to doubt that the water thus issued could, if retained in the reservoir, be utilized later in the year for extensions of the area irrigated.

4. It therefore appears to His Excellency the Governor in Council that from the point of view of the Government of India, *viz.*, that the demands for water for irrigation must take precedence of any demand for power and that water must not be sold for power instead of for extension of irrigation, there is no prospect of any material change in the present position being brought about by extension of the catchment area or of supply. His Excellency the Governor in Council is therefore of opinion that the introduction of any scheme for the continuous supply of water for power must, for the present, be regarded as a very remote contingency if not altogether impracticable, and that the first condition of any concession which may be granted for the use of the power supplied from the Periyár should be that water will not be at the service of the concessionaire except during those periods of the year in which it is issued for irrigation purposes, at present about ten months annually, the Government reserving to themselves the full right to cut off the supply at any time should it be found necessary to do so in the interests of irrigation.

5. The grant of such a concession would probably have a considerable effect on the industrial development of the Madura district. One of the resolutions of the Industrial Conference which was held at Ootacamund in September 1908 and a report regarding which was submitted to the Government of India in Revenue Department letter No. 4294, dated 3rd March 1909, was that the possibility of utilising the water-power available in the Presidency, for the generation of electricity or other industrial purposes should be investigated. Subsequent to the Industrial Conference and in accordance with one of its resolutions, this Government appointed a small committee including Dr. Morris Travers, Professor Rudolf and Dr Hay of the Indian Institute of Science, Bangalore, Mr. Harrison, Agricultural Chemist, Major Miller, then Chemical Examiner, and other experts to investigate the chemical industries of this Presidency and one of the resolutions adopted by this committee expressly approved of the supply of cheap electric power as tending to stimulate the development of industries generally, including those affecting chemistry. In forwarding this resolution the committee remarked that the utilization of the water-power available in this Presidency would undoubtedly be an important factor in encouraging industrial enterprises. In this view this Government agree and consider that provided due safeguards are taken to prevent prejudice to the important irrigation interests for which the Periyár system primarily exists, no obstacle should be placed in the way of the utilization of the power available in the Periyár water for generation of electricity to be devoted to industrial purposes. If, as Mr. Garrett seems to contemplate, the concession for which he applies would be used for the manufacture of manurial nitrates, the supply of such manure at a price within the means of the cultivator might have an important effect on the improvement of agricultural and might indirectly promote the progress of the Periyár scheme as an irrigation work by supplying the manure required for second crop cultivation. Even if the concession were utilised for other purposes, it would involve the employment of a considerable amount of labour in the district, as well as a considerable capital expenditure.

6. Assuming that, subject to the limitation indicated in paragraph 4, the grant of a concession for the utilization of the Periyár water-power is held to be admissible, there are certain further conditions which His Excellency in Council regards as necessary for the protection of the public interests. Prominent among these would be a stipulation that the actual development of the concession shall be commenced within a period of one year from the date of the articles of agreement and that failing such commencement, the concession shall become void. On the other hand in order that the concessionaire may have reasonable time in which to bring his enterprise to the productive stage it would seem fair that no charge should be made on account of the concession for a period of five years from the date of the articles of agreement. If, however, at the end of three years from that date, the Government should be satisfied that reasonable progress had not been made with the works for the utilization of the power they should have power to impose from the end of the third year a charge equal to that leviable in respect of the full quantity of water available for power that may be passed out of the lake for irrigation purposes. As regards what that charge should be, His Excellency in Council would suggest that, under the present conditions of discontinuous supply, it should be fixed at the rate of Rs. 30

per million cubic feet of water supplied. If it should ever be possible to grant a continuous supply throughout the year, this rate would be insufficient and would have to be reconsidered; but as no such continuous supply can, under the decision of the Government of India communicated in Mr. Thomson's letter No. 2173, dated 1st December 1909, be made for many years, it is unnecessary at present to take such a contingency into account, as, were it to arise, any agreement drawn up on the basis of existing conditions would have to be terminated and an entirely new agreement drawn up. In such an event it would probably be possible to raise the charge to double or treble the figure now suggested. Any concession now to be granted may be for a period of thirty years, but there should, in the opinion of this Government, be no provision for any renewal at the end of that term as it is undesirable to fetter, in any way, the discretion of Government in regard to such renewal. Failure on the part of the concessionaires to utilize the water for the generation of electrical power for six months in any consecutive period of two years, after the expiry of the initial free period, should operate as a cancellation of the concession. Other conditions as to erection of works, maintenance of meters and the like should be provided.

7. The above conditions which, with others of less importance, have been set out in detail in the enclosed note constitute the principal terms which the Governor in Council considers should be laid down as the basis of any concession for the development of electrical energy from the Periyár water. But while we recognise the immense importance of all such schemes from the point of view of industrial progress, yet the importance which attaches to the interests of those who depend for irrigation on the Periyár must not be obscured. The present conditions under which the supply of water for irrigation is fluctuating and intermittent are likely to bring these rival interests into conflict. It is true that Mr. Garrett at present recognises the necessity for intermission in the discharge from the Periyár for two or two and a half months every year and acquiesces therein, but it is difficult to believe that, once the electrical works are constructed and experience is had by the concessionaires of the disabilities which must accrue (periodically) from the suspension or withdrawal of the generating power, serious attempts will not be made to bring pressure on Government to relax the conditions which have been imposed in the interests of the cultivating ryots so as to favour those of the concessionaires.

8. Any sacrifice real or apparent of the interests of the ryots in favour of those of the producers of electrical power cannot fail to cause resentment and thus to effect mischief politically if not economically.

9. These considerations make it necessary in the event of any concession being granted so to frame the conditions that the supply of water for cultivating purposes is amply safeguarded from any injurious interference by the concessionaires. I am to request that if the Government of India are satisfied that these ends can be secured and the offer which has been made by Mr. Garrett accepted after being made subject to certain conditions, this Government may be informed with the least possible delay of the decision which may be arrived at. It is presumed that the Government of India will themselves make a reply to Mr. Garrett.

I have the honour to be,

Sir,

Your most obedient servant,

H. E. CLERK,

Ag. Joint Secretary to Govt., P.W.D.,

Irrigation Branch.

OOTACAMUND,

6th May 1911.

Documents accompanying—

1. Draft conditions.
2. Copy of G.O., No. 442 I., dated 9th May 1900.
3. Copy of G.O., No. 1292 I., dated 19th November 1904.

[Appendix.

8

Appendix to Letter No. 140 I., dated 6th May 1911.

Draft Conditions to regulate the supply of water for power purposes at the Periyár.

1. No guarantee of any definite supply of water is given by Government and Government accept no liability for any interruption of supply from any cause whatever.

2. No water will be supplied except during the period during which it may be issued for purposes connected with irrigation.

Note.—At present water is issued for irrigation for about ten months in the year.

3. The Government may at any time without notice reduce or cut off the supply of water should it be necessary in their opinion to do so in the interests of irrigation.

4. No charge on account of the concession will be made for a period of five years from the date thereof as hereinafter provided.

5. After the expiry of the period of five years from the date of concession above referred to, all water used for power will be charged for at the rate of Rs. 30 per million cubic feet.

6. Should the concessionaire at the end of the twelfth month from the date of concession not have commenced to erect the works for the utilization of the power referred to in the concession, the concession shall become null and void.

7. Should the concessionaire at the end of three years from the date of concession not have erected works sufficient to generate 2,000 horse power to the satisfaction of Government, he shall be liable to pay from such date a charge at the rate of Rs. 30 per million cubic feet for all water issued from the reservoir for irrigation purposes and actually available for power up to the maximum quantity which the penstock line is capable of passing.

8. The concession will hold good for thirty years and no stipulation for the renewal will be included therein, the question of any such renewal being wholly and entirely reserved for the consideration of Government.

9. Should the concessionaire at any time during the continuance of the concession and after the expiry of the free period of five years fail in any two consecutive years to utilize for six months in any one year the minimum amount of 2,000 horse power, the Government may terminate the concession.

10. The concessionaire shall provide, construct and maintain at his own expense and in accordance with plans to be approved by Government all weirs and other works required to divert the water for power purposes.

11. All water taken for power purposes shall be measured by means of *venturi* or other suitable meters which shall be provided, erected and maintained at the cost of the concessionaire and in accordance with plans which shall be approved by Government. The meters and machinery shall be open to inspection by any authorized Government officer.

12. All water measured by meters aforesaid shall be paid for by the concessionaire at the rate of Rs. 30 per million cubic feet irrespective of whether such water is actually utilized for generating power or not.

13. All water supplied to the concessionaire shall be returned without diminution in quantity to the river below the works and shall not be contaminated or in any way so altered as to render it unfit either for drinking purpose or for irrigation purposes.

14. In the event of any dispute regarding the terms or interpretation of this agreement, the dispute shall be referred to the arbitration of one of His Majesty's Secretaries of State not being His Majesty's Secretary of State in Council.

H. E. Clerk,
Ag. Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

9

CONFIDENTIAL.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

NOTES CONNECTED WITH G.O., No. 139 I., DATED 6TH MAY 1911.

[SUBJECT.—*Developing electrical power by the Periyár falls and Smoking rock falls on the Cauvery.*]

Demi-official—from A. H. GARRETT, Esq., late of the Madras Public Works Department.
To—C. A. SMITH, Esq., Joint Secretary to Government, Public Works Department (Irrigation Branch).
Dated—St. Heliers, Jersey, C.I., the 1st September 1909.

Thomson sent me from the India Office Benton's report on my Periyár scheme, and I presume it may be taken as settled that Government have no intention of developing power themselves for another fifty years at any rate.

Possibly schemes of this sort are better left to private enterprise, and I am writing to let you know that an application will shortly be made to Government, for a concession to develop energy by the water issuing from the Periyár reservoir.

The great drawbacks to the scheme are—

(1) the distance of Koravanuth from the Railway,

(2) the fact that any industry dependent on the power developed could only be carried on for eight or nine months in the year, or simply during the irrigation season,

(3) the possibility of the water-supply being reduced every now and then in the interests of irrigation, or

(4) being completely cut off for a week or more, as has happened once already in consequence of an accident to the head sluice.

I have laid all the facts of the case before a firm of Electrical Engineers, and we have come to the conclusion that power could be successfully developed for industrial purposes, if Government raised no difficulties about the concession.

Of course it would be understood that Government gave no guarantee about the amount of water to be supplied, beyond an undertaking that the water issued for irrigation might first be used by the manufacturing concern for developing power.

In all probability the power would be exclusively used in the manufacture of atmospheric nitrate of lime.

This lime nitrate is one of the best fertilisers known.

A few years ago a factory worked by electricity obtained from a waterfall was started in Norway, and produce 2,000 tons of lime nitrate in the year. They have quite recently finished a factory, which will enable them to produce 20,000 tons annually, and are building other factories with the object of increasing their output to 100,000 tons.

At Koravanuth it might be possible to turn out about 15,000 tons of the fertiliser annually.

I think a scheme of this kind should certainly meet with sympathetic consideration from Government, for in giving it their support they would not only be encouraging private enterprise, but would be furthering their own aims, in assisting the ryot to adopt improved methods of agriculture.

Possibly the application for a concession will go first to the Secretary of State, but when it reaches your hands, I hope you will get Government to dispose of it without loss of time, and of course I shall be only too glad if you can see your way to recommending them to take a favourable view of the matter.

10

What is being done with the Cauvery and Kistna reservoir projects, and has the Tungabhadra project been definitely abandoned?

I was afraid of this happening when Curzon left.

What sort of men are you now getting in the department? From what I heard from Monty Brown when he was over here, you have reason to regret the closing of Cooper's Hill.

Ashpitel has bought a house here, and has permanently settled down. The place suits him wonderfully well, and he is a very different looking man to what he was in India.

Remember me to Wilson and Smith.

Demi-official—from A. H. GARRETT, Esq., late of the Madras Public Works Department.

To—C. A. SMITH, Esq., Joint Secretary to Government, Public Works Department (Irrigation Branch).

Dated—St. Heliers, Jersey, C.I., the 6th October 1909.

I hope by the time this reaches you, my application for a concession to use the Periyár water for power will have been sent in from India.

I have been in correspondence with Sir J. Thomson, who seemed to think Government could have no possible objection to granting a concession, provided the undertaking would be shown to be feasible, and that the promoters were capable of financing it.

We shall be able to completely satisfy Government on both these points, if the concession is granted on terms we can accept. This is not a case like the Tambraparni one, as we ask for no guarantee regarding the amount to be supplied, but merely for the right to use some of the water delivered for irrigation.

Government, therefore, incurs absolutely no risk, and will benefit considerably if the fertiliser becomes popular with the ryots.

I hope you will let me know, as soon as possible, how Government regard the application as in the event of getting the concession, we should like to get to work as soon as possible.

I enclose a booklet which gives information about atmospheric nitrate of lime.

From the Government of India, No. 2003 M., dated 30th November 1909.

To Under Secretary—

Submitted for orders.

2. As regards the Hogenkal falls, reference is requested to G.Os., No. 442 I., dated 9th May 1900, and No. 1292 I., dated 19th November 1904.

M.S.V.
16-12-09.

The letter so far as it affects the Periyár is dealt with in the other file.

As regards Hogenkal falls a reference must be made to Special Superintending Engineer to find out whether, and if so, how the fall available will be affected by the Cauvery Reservoir, the waterspread of which extends right up to the bottom of the falls and may possibly reduce the fall available for power.

I think some one from Mahé applied last year for a concession for the Hogenkal falls, but the file is probably with Revenue.

C. A. SMITH.
24-1-10.

Chandernagore.

F.N.
14-2-10.

G.O., No. 1821, Revenue, dated 2nd July 1908.

To Revenue Department u.o.

17

Revenue Department.

To Under Secretary—

With reference to the concluding sentence in Public Works Department (Irrigation) note above, please see G.O., Nos. 1821-22, dated 2nd July 1908. Revenue may, it is submitted, agree to the proposed reference to the Superintending Engineer.

B. V. Rama Rao.
11-2-10.

P.T.S.
12-2-10.

To Secretary—

F. Noyce.
14-2-10.

The proposed reference to the Superintending Engineer is accepted, as two months have already elapsed since the receipt of India's Endorsement No. 2004 M., dated 30th November 1909, and as Mr. Garrett's proposition is on quite a different basis from the scheme of Mr. Chatterton dealt with in Public Works Department (Irrigation) No. 274 I., dated 28th June 1909, I would suggest that the reference to the Superintending Engineer on the former should issue at once without waiting for the disposal of the Government of India's reply to the latter, and the Superintending Engineer be asked for very early report.

A. G. Cardew.
15-2-10.

To Public Works Department (Irrigation) u.o.

Public Works Department
(Irrigation Branch).

To Under Secretary—

A draft memorandum to the Special Superintending Engineer is submitted for approval.

M.S.V.
18-2-10.

S.S.
18-2-10.

J. M. Lacey.
23-2-10.

Issue the memorandum at once and return the file to me for disposal.

C. A. Smith.
23-2-10.

Issued as R.O.C., No. 3027/09, dated 22nd February 1910.

Demi-official—from the Hon'ble Mr. M. Hammick, C.I.E., I.C.S., Member of Council.
To—the Hon'ble Mr. C. A. Smith, Chief Engineer for Irrigation.
Dated—the 24th February 1910.

Will you answer this next mail? You won't be in time this mail. I do not know why Garrett should apply to me.

Telegram—from A. H. Garrett, Esq., late of the Madras Public Works Department.
To—the Hon'ble Mr. M. Hammick, C.I.E., I.C.S., Member of Council.
Dated—the 23rd February 1910.

Received following cable. Please let me know as soon as possible if concession will be granted by Government.

12

From the Superintending Engineer on Special Duty, dated 7th March 1910, *No.* 78-*J*/216.

A reply has now been received from the Special Superintending Engineer, which shows that the effective fall at Hogenkal will be materially reduced by the Cauvery Reservoir and it is unlikely that the falls will be of much use. It noticed that the present available fall is only about 50 feet as against 90 feet as given in the previous reports and this requires further enquiry, but meantime we may as well go on with the disposal of the Periyár case to save delay.

2. As regards the terms upon which the Periyár water may be used for power. So far we have only the following cases to guide us—

(1) Papanasam Mills where the charge is Rs. 52 per h.p.—*vide* Mr. Hughes' note on page 20 note file—G.O., Nos. 3158-59, Revenue, dated 1st September 1899, but which Mr. Hughes did not consider to be a case in point.

(2) Cauvery falls at Sivasamudram where Mysore pays Rs. 5 per h.p. on the British share which is taken as one half of the total.

G.O., No. 430, Revenue, dated 7th May 1900.

(3) Hogenkal falls in which the same rate was quoted to M. Leon Tardivel in G.O., No. 1821, Revenue, of 2nd July 1908, and which was based on the rate charged for the Cauvery falls.

3. I think that the Papanasam falls may be left out of consideration as the charge is far too high for the Periyár and the latter may be compared with the Cauvery. In the case of the Cauvery, the fall is a natural one and the charge made is a clear gain to the Madras Government, but at the same time the concession having been given, the Government cannot carry out any schemes of their own.

The result will be the same in the case of the Periyár, but in this case Government have incurred a very large outlay in creating the falls and are therefore entitled to expect something in return in addition to what is realized from irrigation revenue. Against this it is necessary to set off the fact that owing to the necessities of irrigation the supply of water for power is intermittent and cannot under present conditions be utilised for more than 9 to 10 months in the year. It will be seen from the figures on page 3 of G.O., No. 1020 I., dated 28th October 1905, and pages 16—18 of appendix 7 to letter No. 1021 I. of 28th October 1905 that Mr. Garrett anticipated a net revenue of Rs. 8,82,000 from an expenditure of Rs. 1,50,00,000. Deducting from this the revenue expected from increase of irrigation (on page 16) the net revenue expected from an expenditure of Rs. 80 lakhs is Rs. 7,53,400 for 33,000 h.p.

	RS.
Net revenue	8,82,000
	1,28,600
	7,53,400
Power scheme buildings	10,50,000
Leading channel	3,66,000
Unforeseen charges	2,50,200
	16,66,200
Establishment at 23 per cent.	3,83,226
Tools and plant at $1\frac{1}{2}$ per cent.	24,993
Machinery	47,34,000
Carriage of plant and staff 25 per cent.	11,83,500
Total direct charges ..	79,91,919
or say	80,00,000

This is equivalent to a net revenue of Rs. 22·8 per h.p. and is based on selling power at £4 or Rs. 60 per h.p. within 10 miles of the generating station. This being based upon a continuous supply of power it will apparently be fair to deduct, say, 10 per cent. from the profits if the power is only supplied for, say, 10 months

and the return would fall to Rs. 20·5 per h.p. The capital cost of a h.p. is $\frac{80,00,000}{33,000}$ = Rs. 242 per h.p. and the return is therefore 8·5 per cent.

If a rate of Rs. 5 per h.p. is charged, the percentage would be reduced to 6·4. It would therefore appear that Rs. 5 per h.p. would be quite as much as and probably rather more than Mr. Garrett's original scheme could bear. From the figures given by Mr. Chatterton on page 6 of G.O., No. 274 I., dated 28th June 1909, it will be seen that the capital cost of a h.p delivered at Madura is Rs. 325, the selling price £4–10–0 per h.p. at Madura and the net revenue Rs. 36·25 per h.p. Deducting 10 per cent as above for an intermittent supply this will be reduced to Rupees 32·6 per h.p. and deducting Rs. 5 per h.p. the return on the capital outlay will be 8·5 per cent.

4. Considering the many uncertainties about the schemes as at present framed it is doubtful if a less percentage than 10 would be accepted by investors and therefore from the above it would appear that Rs. 5 per h.p. is probably quite as much as any intermittent supply power scheme is likely to be able to stand, but in the absence of definite information I think it may stand and we may leave it to the applicants for the concession to move for its reduction if they think it too much.

5. As regards the terms they may, I think, generally follow the lines of the agreement with the Mysore Darbar, but it will have to be laid down distinctly that water can only be used when required and issued for irrigation and the Government reserve the right to cut off the supply at any time when it is necessary to do so.

6. I would suggest that India be informed accordingly and if they agree, they may be asked to inform Mr. Garrett accordingly by cable.

C. A. SMITH.
16–3–10.

To Revenue Department u.o.

REVENUE DEPARTMENT.

To Under Secretary—

Submitted for perusal. Reference is also solicited to Public Works Department (Irrigation) note, dated 9th March 1910, in the file of C. No. 3076/10.

2. Revenue may, it is submitted, accept the proposal of Public Works Department (Irrigation) in their note, dated 16th March 1910, in this file.

B. V. RAMA RAO.
19–3–10.

P.T.S.
21–3–10.

To Secretary—

F. NOYCE.
22–3–10.

To the Honourable Member—

The proposals made in Mr. Smith's note may, I submit, be approved.

A. G. CARDEW.
24–3–10.

I agree. I heard privately from Bangalore a short time back that a certain Mr. Gibbs, who is, I believe, an Electrical Engineer in Mysore, intended to apply for

a concession in regard to the Periyár fall. If competitive applicants come into the field Public Works Department might have an opportunity for learning the commercial value per h.p.

J. N. A[tkinson].
25-3-10.

To Public Works Department (Irrigation) u.o.

A.G.C.
26-3-10.

Public Works Department
(Irrigation Branch).

To Deputy Secretary—

For orders.

2. The file of Mr. Gibbs' application is with Under Secretary. (Disposed of in G.O., No. 109 I., dated 5th April 1911.)

M.S.V.
29-3-10.

S.S.
29-3-10.

To Chief Engineer—

J. M. Lacey.
29-3-10.

Draft to India accordingly without delay.

C. A. Smith.
29-3-10.

To Under Secretary—

A draft order with letter to the Government of India is submitted for approval.

M.S.V.
2-4-10.

S.S.
2-4-10.

To Secretary—

The portion **A—A,** pages 4 to 6 of the letter may be omitted, and this portion altered as noted in the margin.

J.M.L.
4-4-10.

Retype the letter as altered.

I see no necessity for a minimum charge as it will not pay any one to erect a small installation.

C. A. Smith.
4-4-10.

To the Revenue Department u.o. for acceptance.

Revenue Department.

To Under Secretary—

The draft order and letter may, it is submitted, be accepted in Revenue.

B.V.R.
6-4-10.

M.S.
6-4-10.

To Secretary—

Revenue may accept the draft order and letter. I submit.

F. NOYCE.
7-4-10.
A. G. CARDEW.
8-4-10.

To the Public Works Department (Irrigation) u.o.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

To Under Secretary—

The drafts may be circulated to the Hon'ble Mr. Hammick and to His Excellency the Governor after the tour circulation ceases.

S.S.
9-4-10.

To the Hon'ble Mr. Hammick, C.S.I., C.I.E.—

The case is described in my note on pages 4 and 5 *supra* and the draft letter to India has been accepted in Revenue.

C.A.S.
9-4-10.

I have no objection to offer to the draft letter. I have always thought Mr. Benton too prejudiced against making any use of Periyár water other than for irrigation. If we could get a much higher value for water by selling it for power purposes than we are ever likely to get for it for irrigation, then surely it is wise to use at least a portion for power. Mr. Benton does not seem to think so.

M. H[AMMICK].
12-4-10.

Note for His Excellency—

The file relates to an application from Mr. A. H. Garrett, late Chief Engineer for Irrigation, for a concession to use the Periyár water for power, received from India.

Mr. Garrett's proposals differ from those previously put forward in that he accepts the fact of water being shut off for about two months and only proposes to use the water actually issued for irrigation.

I have noted upon this proposal in pages 4 and 5, notes file, and the draft letter to India which has been accepted in Revenue and by both the Honourable Members is submitted for approval.

Pending receipt of a reply from Mr. Garrett it has been decided to let Mr. Chatterton's scheme, to which India would not agree, lie over.

C. A. SMITH.
14-4-10.

I am sorry to differ from my Honourable Colleagues, but I think that it would be a great mistake to make any such concession as this regarding the Periyár water and certainly not on the very easy terms proposed.

We are just now considering and investigating schemes for increasing the storage capacity of the lake and if within the next 10 or 20 years a scheme has been devised—as it certainly in my opinion will be—for a *continuous* flow through the tunnel, then the right to utilise the water will be of *immense* value.

The position of the tunnel and the physical conditions just below the outlet make an ideal site for a generating station once a continuous flow is guaranteed and seeing what Sivasamudram has done for the Mysore Government. I should

be most unwilling to part with the control of the Periyár water at this juncture. Of one thing I am quite certain that once the concession is given and advantage is taken of it to set up works, etc., there will be constant trouble between the rival claimants for the water—the ryots on one side and the concessionaires on the other.

If it were left to me I would certainly decline at the present moment to make any concession of the Periyár water power.

A. L[awley].
18-4-10.

Circulated to Honourable Members.

C.A.S.
25-4-10.

To the Hon'ble Mr. J. N. Atkinson, C.S.I.—

To the Hon'ble Mr. M. Hammick, C.S.I., C.I.E.—

When I wrote my note of 25th March on pages 5 and 6 above the main question that presented itself to my mind was in regard to the pecuniary terms upon which a concession should be granted. The possibility of the improvement of the Periyár supply, to which His Excellency refers—the enormous improvement involved in the substitution of a continuous for an intermittent supply of water had not occurred to me, and had not been mentioned in the notes or current file as a factor to be taken into consideration, in deciding the initial question whether a concession should be given or not. Nor do I think, after careful consideration, that it is necessarily a factor to be taken count of in this particular connection. Undoubtedly the possibility of future improvements in the supply should be borne in mind and allowed for in settling the terms upon which a concession should be granted. I suppose there are various ways, intelligible to an Engineer, in which the supply of water, and therefore the capacity for generating electrical power might be improved. But for present purposes it is unnecessary to refer to any other improvement than that which would be effected by the provision of a continuous flow instead of the present intermittent flow from the Periyár lake. It seems to me, a layman, that in settling the terms of any concession that might now be granted, it would be possible to estimate what would be the enhanced value of the concession, that would result from giving a perennial in substitution for a seasonal flow of water, and that contingency would of course be taken into account in settling the terms of the concession. Or if there be difficulty in estimating now the value of such a future improvement, a covenant might be inserted in the contract providing for revision of its terms on the occurrence of that contingency.

2. His Excellency thinks however that the probability, or certainty of this future improvement being effected should be held as a bar to the granting of any concession at all at the present time. I venture to doubt whether this conclusion follows from the premises. The question is, in my opinion, simply one of terms, or conditions, to be embodied in the concession. If the Engineers can tell us with reasonable accuracy what will be the value of the concession when continuous flow of water is assured, we can insert the appropriate terms in our proposals for the contract: if they cannot tell us, we can stipulate for a revision of the contract, or indeed for its cancellation on the provision of continuous flow. In either case it is for the would-be concessionaires to say whether they will accept our terms or not.

3. But there is one point to which His Excellency incidentally refers, which, I think, does raise grave doubts as to the advisability of granting any concession at all, and that is the probability of "constant trouble between the rival claimants "for the water, the ryots on one side and the concessionaires on the other". We may take it as certain that any concession we may give will be of enormous value, and will sooner or later fall into the hands of financiers and commercial magnates wielding immense power. We know the power of a Railway Company, and at what a disadvantage we are when we have to fight such a company. I am afraid

it will be the same with any Periyár Electric Power Company. They will wield such power in the London Money Market that their interests would always prevail over those of the ryots. We want no Frankenstein's monster here.

4. If trouble were to arise between the concessionaires and the ryots, and if the Madras Government found themselves powerless to protect the latter, they would have to invoke the assistance of the Government of India, and the Secretary of State. It is for them to say, whether they feel confident of their power to withstand powerful commercial interests. Experience in connection with the South Indian Railway Company and District Board Railways is not encouraging.

5. I think what we should do is to explain the state of the case at much greater length than in the draft put up; to set out our desire to aid the industrial development of the country, and our recognition of the immense importance of the part to be played by electrical installations; but in regard to this particular case of the Periyár to point out the almost inevitable divergence of interests between the ryots and any concessionaires who may enter the field. We might indicate what we believe would be the present value of any concession but draw prominent attention to the probability of enhancement of value in the future. And I think that we should deprecate the immediate grant of a concession to Mr. Garrett's syndicate, and say that if the Government of India decide that a concession may be given it would be preferable to advertise the fact, and invite applications, by which course alone it seems to me that we can ascertain the fair market value of the concession we are prepared to offer. It would be for Public Works Department to formulate the terms of the concession we are prepared to advertize, and tenderers would state the price they would pay per electrical h.p.

6. I understand from Mr. Smith that if it be known that we can only supply intermittent water power no one is likely to apply for a concession. Mr. Garrett's syndicate may perhaps not be aware of this fact; or—and this is the danger—they may hope that once having got the concession, and erected plant, engaged staff. and otherwise and with capital they will be able to force us to arrange for continuous flow, whether by pumping or in any other way. The one great question is—will the Government (including the Government of India and Secretary of State) be able to resist pressure of this sort, when submission would injure the interests of the ryots.

7. On the whole, I think, there would be no risk in advertizing for tenders. We are not bound to accept any tender, while we may acquire useful information as to the value of any concession we are in a position to give.

J. N. A[TKINSON].
26-4-10.

I must confess I was somewhat unduly influenced in this matter by what I thought was the attitude of Mr. Benton. He is apparently dead against any attempt at present to utilise this enormous supply for any purpose other than that of irrigation; to my mind the prospect of a large industry started in Madura by power from this fall is so alluring that perhaps I did not weigh the opposite considerations sufficiently.

We may take it, I suppose, that any person who gets this concession will at once sell it in London to a company, and the objection put forward by my Honourable Colleagues is that such a company will be so powerful as to make it certain that we shall find their disputes with the ryots a great anxiety and trouble. But so far as I understand the thing works to supply electric power will not diminish the supply of water with channels below by one drop, so except that the company may claim to get water down the fall earlier or later, in the year than suits the ryots, I cannot conceive how any cause for dispute will come about and surely it should be quite possible to tie down the company by agreement to any terms in this matter that Government may think desirable. I do not think we should postpone trying to get this water power used on the ground.

The second objection that the water is now intermittent or in a bad year may be so, and that in some future year this feature will be removed and we shall get a continuous supply, and that then we should have full power to make new terms, which power we may lose by making a grant now does not seem to be an objection which should prevent our using what we have got now.

Our supply is continuous now during the irrigation season of 9 to 9½ months, but cannot be given continuously for 12 months.

C.A.S.
28–5–10.

Surely it is not beyond the wit of the lawyers to draft an agreement giving the Government of the time being ample powers to revise the terms should a continuous and ample supply be at any time secured.

If we drop this business we put off the enrichment and development of the Madura district for years to come. I do not know much about the improvements to the Periyár supply, but past history shows that these kind of schemes especially when they necessitate negotiation with a Native State take years.

I am certainly very unwilling to see this idea of developing power in Madura dropped for all this long time.

The Government of India who depend upon Mr. Benton who is wrapped up in irrigation never will see the enormous importance of this power and they will do nothing to hasten its development.

I saw Mr. Gibbs of Mysore in Bombay last week and he told me the Bombay Government have taken the keenest interest in a power scheme to be made at Lanowli to supply units of 500 h.p. to Bombay. Here we have a far better source than any they have and I think we should do all we can to push it.

The weak point of the Periyár water power is want of continuity of supply throughout the year.

C.A.S.
28–5–10.

Merely because the water supply in some years cannot be guaranteed seems to me an insufficient reason for not trying to start a scheme.

I doubt whether advertising will do much. I think it was advertised once, but we have now more than one application for the power and it seems to me we should not choke them off.

I would address India and state the case more fully than we have stated it, and press upon the importance of the scheme, and say the terms we proposed making them if advisable much stiffer than those we have mentioned and ask their advice.

In any case, I think, it would be the greatest mistake to drop all idea of using this power until we secure a better supply. As I have said we can protect ourselves by agreement and looking to the past importance of the scheme it seems to me a terrible mistake to drop its consideration for it may be 20 years or more.

M. H[AMMICK].
28–4–10.

As directed by Secretary an extract from the "Engineering Record" of 5th February 1910, page 153, is put up below and the file submitted for orders. An application * from Messrs. Beardsell & Co. is put up in file below.

* Disposed of in G.O., No. 104 I., dated 3rd April 1911.

EXTRACT FROM THE "ENGINEERING RECORD", DATED 5TH FEBRUARY 1910.

Valuation of water power.

There has been brought before the Railroad Commission of Wisconsin a case involving the rates and charges of the Beloit Water, Gas and Electric Company. The company has brought expert testimony to establish the value of the water power used by it, which value, it is claimed by the company, must be included in the valuation of the plant upon which rates for its services must be computed.

Professor D. W. Mead testified as follows :—"No commodity has any actual value in itself, for its value depends solely on the nature of the supply and

demand which actually exists or may be created. Thus a water power at a point inaccessible under present conditions would have no value otherwise than speculative value dependent on the possibility of the future development and utilization. On the other hand, a water power, even though unutilized, but at a point where it may be profitably utilized, would have a potential value depending on its location relative to a market and the nature of such market." Professor Mead described various ways in which the value of a water power might be estimated—

First, the value might be measured by the market value of similar water power at the locality, provided such market value can be clearly established. Such value should not be measured, however, by the price demanded by parties having a monopoly of such power. Neither should it be measured by prices asked by owners having extra power for which they have no use and on which they are anxious to realize. It should be measured by a price fixed on the basis of what may be fairly demanded by parties owning power and fairly paid by parties desiring to purchase such power under the particular conditions of local use. Such a measure of value is usually difficult, if not impossible, to apply except where large water-power developments are owned in common by numerous users, as is the case in many of the large eastern water powers

Second, the value of water power may be estimated on the basis of its rental value or the capitalized earnings which may be realized from the use of power under the conditions of its local use. This is a basis more readily applied and more definite and positive in its results. It should be modified by the probable permanency of the demand and so reduced as to make such capitalized investments unquestionably attractive.

Third, the value of water power may be estimated on the basis of the saving actually effected by its use compared with the cost of such other method of developing power as would be normally used were the water power not available. The saving effected should be estimated on the basis of interest, depreciation, repairs, maintenance and operation of both classes of plants considered, and the contingencies and flexibility of service must also be given due weight. In such a comparison the capitalized value of the extreme maximum development should not be used, but the value should be so selected as to make the development of the water power an object to the plant ; that is, an actual saving should result from its ultimate use on the basis of the value fixed.

Mr. Benezette Williams, who testified in the same case, stated : "The value of water power in such a case is not wholly due to a saving in the fuel which its use effects, but also to a large extent upon whether the hydro-electric plant is purely an auxiliary to the steam plant, a surplusage, as it were, acting only as a fuel saver, or is an independent unit which is an integral part of the combined plant and takes the place of a steam unit that would otherwise have to be installed. If it is an independent unit the case is simplified, as there will be no unnecessary duplication of units and hence no additional capital upon which interest must be paid." Mr. Williams further laid down the principle that the value of water power in general is almost wholly dependent upon local conditions which create a demand therefor, and must be measured by the saving which can be effected by using it instead of steam power. Its value is also dependent upon the place which the hydraulic plants fill the total aggregation, and upon the saving in the cost of operation, interest and depreciation when used as a substitute for steam power.

J. M. LACEY.
9-5-10.

The file is resubmitted to His Excellency the Governor for orders.

C. A. SMITH.
10-5-10.

Very well ! Let us go to India and explain the position, but we must insist on much more stringent conditions than those proposed in the draft letter which was originally submitted.

20

In the first place, I would not give more than three years' grace at the outside before we charge the concessionaires for the water.

I am of this opinion.

V. K[RISHNASWAMI AIYAR].

I don't quite know what is meant by "the terms shall be liable to revision" at the end of thirty years.

I should give it for 30 years without saying anything about renewal.

I agree.

V. K[RISHNASWAMI AIYAR].

If at that time the flow is continuous the whole position will be altered. It is, I think, rather futile to insist on a revision of the concession if at any time the flow becomes continuous or largely increased. Paragraph VI in the draft letter is of little real value in its present form.

I should, in the first place, insist on a capital expenditure within three years of a sum sufficient to ensure the erection of adequate machinery and should make failure for two years to produce a minimum quantity of h.p. a warranty to Government to cancel the concession.

Yes.

V. K[RISHNASWAMI AIYAR].

I don't quite know what the minimum should be—so many thousand h.p. for so many months?

If we part with this right we must do what we can to ensure that it is put to practical use and not merely hawked about London as a "speculation".

A. L[AWLEY].
14-5-10.

Demi-official—from A. H. GARRETT, Esq., late of the Madras Public Works Department.
To—the Hon'ble Mr. C. A. SMITH, Chief Engineer for Irrigation.
Dated—St. Heliers, Jersey, C.I., the 27th April 1910.

On 1st September last I wrote telling you I intended to apply for a concession to use the Periyár for developing power. I had discussed the matter with a firm of Electrical Engineers, and the conclusion arrived at was that power for industrial purposes might be successfully developed, even if operations were suspended altogether during the time each year when no water was used for irrigation.

In these circumstances and as Benton had advised Government that the question of developing power by the Periyár might be postponed for 50 or 100 years. Thomson who is on the Secretary of State's Council agreed with me in thinking that Government could not possibly object to granting me the concession applied for. Higham, to whom I had written, said that judging from his own experience, it was of no use applying for a concession without going out to India. He got a concession for using water supplied by the Punjab canals, and the water so used was lost for irrigation, so that his case was very different to mine. However I told Atkinson I was prepared to go out to India if necessary.

I applied to India for a concession soon after writing to you, and I also informed the Madras Members of Council and Castlestuart Stuart of my intentions. The letters I received from them gave me the impression that on the whole my scheme was regarded with favour, but I understand that Benton is strongly opposed to it. What his reasons are, I cannot imagine. Government don't seem at all inclined to develop power themselves and by granting my application they run no possible risk, and would certainly benefit, especially if the demand for the fertiliser comes up to our expectations.

I cannot understand why I have not had a reply from India. I wired to Hammick, I should think six weeks ago, asking him to let me know as soon as Government had come to a decision. The matter seems such a very simple one that I cannot understand the delay, and I should be much obliged if you would drop me a line.

I hear there is little chance of any of the big prospects recommended by the Irrigation Commission being sanctioned.

They would have had a different fate if Curzon had remained.

With kind regards.

21

Demi-official—from A. H. GARRETT, Esq., late of the Madras Public Works Department.
To—H. E. CLERK, Esq., Superintending Engineer, Public Works Department, Madras.
Dated—St. Heliers, Jersey, C.I., the 3rd May 1910.

I wrote a fortnight ago to Smith, but have just heard from Benton, whom till now I had always regarded as hostile to my scheme, as Hammick had told me he was throwing cold water on it. Hammick, however, must have been mixing up my scheme with Chatterton's.

Before sending up my application for a concession I consulted J. Thomson who thought the Madras Government could not object to granting it, and Hammick and Castlestuart Stuart also seemed to view it with favour.

I wrote to Smith first of all, but have failed so far in getting any expression of opinion from my own department in Madras.

If there are any points which require to be discussed, I should be ready to come out to India, though naturally I should like to avoid the expense of having to do this

The case seems to me to be this. The Government of India will not sanction any power scheme which affects irrigation. They have been forced to take this view by the experience of Irrigation Engineers in the Punjab. The Periyár Project was finished more than 15 years ago, and though several power schemes have been brought forward during that time, nothing has yet been done.

It is, I believe, certain that the only scheme which will meet with the approval of India is one like mine which involves the suspension of operations for three months every year. It is only in this way you can have a scheme which does not, in any way, interfere with irrigation.

Of course such a condition is a great drawback, and on which, I fancy, Government would regard, as an insuperable objection to carrying out this work themselves.

If I am right in this view Government must eventually allow the work to be undertaken by private enterprise, as they cannot in these days continue depriving the country of the advantages which a 40,000 h.p plant for industrial purposes would confer on it.

Please let me have your views, and let me know whether you think my presence in India desirable. Higham told me I should never get a concession without going out, and I am beginning to think he was right.

If the matter has not been disposed of before this reaches you, I should be much obliged if you could let me know when a decision is likely to be arrived at.

Demi-official—from H. E. CLERK, Esq., Superintending Engineer, Public Works Department.
To—the Hon'ble Mr. C. A. SMITH, Chief Engineer for Irrigation.
Dated—the 22nd May 1910.

Please deal with this. I am writing to Garrett to say that I am no longer Acting Chief Engineer for Irrigation and have sent the letter to you.

Demi-official—from the Hon'ble Mr. C. A. SMITH, Chief Engineer for Irrigation.
To—A. H. GARRETT, Esq., late of the Madras Public Works Department, St. Heliers, Jersey, C.I.
Dated—Ootacamund, the 25th May 1910.

Your letter of 3rd May to Clerk. I have been waiting to write to you for some time past in the hope of being able to tell you something definite with regard to your request for a concession of Periyár water power but I am sorry to say that I am still unable to do so. Your scheme is still under consideration of Government, but I hope that something will be settled about it shortly and as soon as this is the case I will write again.

The matter has not yet reached a stage at which your presence in India would facilitate a settlement.

The official reply to your proposal will have to go through India and as soon as it has been despatched I will let you know.

With reference to the notes of His Excellency and Honourable Members, it appears to be desirable for me to submit some explanation upon the points raised.

2. The principal of these is that of the proposal to ensure a continuous flow referred to by His Excellency on pages 7 and 8 note file and the Hon'ble Mr. Atkinson on pages 8 and 9. The proposal is to increase the catchment area of the Periyár lake by diverting the Pambayár and is dealt with in G.O., No. 226 I., dated 17th June 1908. It will be seen from the above that the scheme is held over for want of data from which to calculate its possible effect, which data are at present wanting.

We do not know exactly the present catchment area of the Periyár itself nor that of the Pambayár, and therefore any calculations made must necessarily be of the nature of guess work. I am, however, preparing a separate note and tables which may be taken to indicate roughly the possible effect of diverting the Pambayár, but as this will take some little time to complete, I will not delay this file on that account.

This is all that I can do at present in connection with the Pambayár scheme. The Government of India Survey Department are now, I believe, engaged on the survey work as will be seen from G.O., No. 65 I., dated 7th March 1910. It might be possible to obtain from the survey party approximate figures for the areas of the two catchments when the triangulation is completed, but even this information will not be available for some months more.

3. The reason why, as remarked by the Hon'ble Mr. Atkinson, no allusion was made to this in the present notes file, is that the Pambayár scheme, so far as its application to the power scheme is concerned, is merely an enlargement of that of Mr. Chatterton. Both involve the issue of water for power at a time when under the present agricultural conditions of Madura, it is not required for irrigation, and therefore the objections raised by India to Mr. Chatterton's scheme will probably apply with equal force to the Pambayár scheme, unless, as may possibly be the case, we may be able to show that a combined scheme for power and extension of irrigation will be more profitable to Government than one for extension of irrigation only.

4. I dealt with India's No. 2173 I., dated 1st December 1909, refusing to approve of Mr. Chatterton's scheme on pages 2—6 note file of C. No. 3076/09, and on page 14 of the same note file, I proposed taking up Mr. Garrett's scheme. I there stated that Public Works Department (Irrigation) would prefer Mr. Garrett's scheme, but did not specifically state my reason. The reason is, of course, that no interference with irrigation interests is involved by the scheme as stated by Mr. Garrett.

5. From the point of view of an Irrigation officer only, I do not view with much favour Mr. Chatterton's power scheme which only benefits irrigation by the amount (at present unknown) which might be paid for the use of the water. At the same time I consider on general grounds that it is a great pity that the available power should not be utilised, if a practicable scheme can be worked out. I, therefore, endeavoured to satisfy India that Mr. Chatterton's scheme would not harm irrigation interests and need not therefore be shelved on that account.

Also I did not overlook in the case of Mr. Garrett's present proposal the possible attempts to interfere with irrigation interests when they clashed with those of power, but as I did not consider myself justified in raising difficulties which might have been classed as imaginary against a scheme of which Government were in favour, I made no mention of this possibility.

6. The notes of His Excellency and Hon'ble Mr. Atkinson show that there is more danger of interference with irrigation than I had previously realized.

23

That interference will be attempted upon the very first occasion on which the interests clash, may be taken for granted, but it should be possible to guard against actual interference by careful drafting of the conditions of the lease. There would, however, appear to be also some risk (*a*) that pressure might be brought to bear either in settling the conditions of the lease or (*b*) in forcing the Government to depart from them in working. As an instance which is at any rate to some extent similar to (*a*) and was presumably due to pressure brought to bear in England, I may quote the case of the Kurnool-Cuddapah canal in which a concession was given to the company by the Secretary of State in direct opposition to the wishes and advice of the local authorities, a mistake for which both India and Madras have been paying ever since. (See paragraphs 3—5, 7, 11, 15 and 16 Monograph on the Madras Irrigation Company's Canal.)

7. I, therefore, now submit that it will be better to accept it as a fact that sooner or later the interference will take place and to consider its possible effects and whether the probable benefits of the power scheme justify Government in running the risk. This risk will, in the case of Mr. Garrett's present scheme, be that we may not only be forced to issue water during the closure for power instead of reserving it for the next irrigation season, but that we might even be forced to reduce the supply to the crops on the ground in order to reserve the water for the purposes of power during the closure. In other words, we might ultimately find ourselves forced into working the reservoir more or less on the lines proposed by Mr. Garrett himself for the scheme which he prepared as Chief Engineer for Irrigation and which was rightly objected to by India in their letter No. 573 I., * dated 4th May 1906, on account of its interference with irrigation.

* Printed on page 2 of G.O., No. 274 I., dated 28th June 1909.

The above is, of course, an extreme and possibly unnecessary assumption, but if, as now indicated by the notes, there is really a risk of such interference being possible and no way of guarding against it with certainty, I shall be obliged in the interests of irrigation to withdraw my recommendation to give any concession for the use for power of only the water issued for irrigation, such as that now asked for by Mr. Garrett.

8. With reference to the Hon'ble Mr. Atkinson's note on pages 8 and 9, I submit that there is great difficulty at present in estimating the value of the Periyár water power, in which connection I invite attention to the extract from the "Engineering Record" of 5th February 1910, of which the third method is applicable to the present case. This method is the one which has been used in both Mr. Garrett's original, and Mr. Chatterton's modified, scheme and the results have in both cases been confirmed to some extent by definite offers made by the expected users of the power. I have no means at my disposal of making any other estimate of the value of the water power, either if supplied continuously or intermittently, and if any further information is required on this, I would suggest that it can best be obtained by the Department of Industries. The value of the Periyár water power is the amount which the probable users are prepared to pay for it and this can probably best be ascertained by advertising as suggested in the Hon'ble Mr. Atkinson's note, paragraph 5. An advertisement was actually issued in May 1897—*vide* G.O., No. 498 I. of 28th May 1897. In G.O., No. 762 I. of 19th August 1897, the time was extended and as will be seen from page 16 of G.O., No. 1020 I. of 28th October 1905, the advertisement was withdrawn, as it was considered impracticable to guarantee any considerable continuous discharge from the reservoir throughout the year which condition still holds good. In this connection attention is invited to Mr. Gibbs' letter just received in linked file No. IV † from which it will be seen that as I anticipated he wants a continuous supply throughout the year, as is also the case with Messrs. Beardsell & Co.—See linked file No. III disposed of by G.O., No. 104 I., dated 3rd April 1911.

† Disposed of in G.O., No. 109 I., dated 5th April 1911.

I also invite reference to the article by Professor Forbes referred to in the notes in file No. III ‡ which shows that gold mines can afford to pay very much higher rates than any other industry. It will, however, be seen from G.O.,

‡ G.O., No. 104 I., dated 3rd April 1911.

No. 796, Revenue, dated 5th April 1907, that the Kolar Gold Mines are only going to pay £10 per h.p. in future and we are unlikely to get anything like this for Periyár power.

9. With reference to the instructions given as to addressing India, I respectfully submit that past correspondence indicates that India will probably be against any concession being granted or any power scheme being started. If, therefore, the Madras Government really wish to have a power scheme at all, the only chance of obtaining India's consent will be to put forward a very strong case in favour of the scheme. I submit that the arguments in favour of the scheme can best be found by the Department of Industries and the functions of the Irrigation Department in the matter are firstly to see that the interests of irrigation are duly safeguarded, and secondly to assist, as far as practicable, by advising on the technical details which come within their province. I would therefore suggest A | that the revision of the draft to India be undertaken by Revenue, but sent to Public Works Department (Irrigation) for acceptance.

10. As regards the conditions upon which the concession may be granted, I recommend on reconsideration that the charge be made upon the quantity of water actually passed through the power installation.

It is possible to measure this and it facilitates the distinction which I now propose to make in the conditions between water issued for irrigation and that issued specially for power. I make this proposal in order that we may provide for the possibility of our being able at some future date to allow water specially for power when not required for irrigation. This is a suggestion towards meeting the objection of His Excellency on pages 7 and 8 *supra* that we may find hereafter that we have given away too cheaply a very valuable asset. I attach, for consideration of Revenue, a rough draft of conditions revised in the direction indicated in His Excellency's note on pages 11 and 12 with the following explanatory remarks:—

Clause (2).—This is newly inserted so that we might hereafter, if water is available, be able to sell it profitably for power instead of for irrigation. I attach a statement from which it will be seen that the average net revenue realised per million cubic feet of tunnel discharge for nine years 1900–1901 to 1908–1909 is Rs. 17·6 which may therefore be taken as its present value for irrigation purposes. If it is considered necessary to fix now the rate at which we will sell water for power, I would add a liberal percentage to the above and put this as the minimum in clause (2).

The lessees will probably want a maximum.

I think, too, that it is necessary to draft clause (2) so as to meet the case of water being issued throughout the year. If such a course is ever possible there is little doubt that the water will ultimately all be used for irrigation of some kind and if such use becomes an established custom, we shall be ultimately obliged to issue water for the perennial irrigation thus developed. As a supply of water for a continuous power scheme is admittedly more valuable than an intermittent supply we may reasonably provide for an increased rate for such a supply. We shall, of course, get some increased return for the water issued for perennial irrigation, but we could get this without power. I have, therefore, drafted clauses (1) and (2) so as to provide for being able to levy a higher rate for a continuous supply, even though water be issued and used for irrigation.

Clause (4).—I respectfully submit that reading this and clause (7) together, payment for water will, if only three years be allowed, begin practically as soon as the machinery is ready for work and that the five years originally allowed might remain.

Clause (5) (*b*).—This is subject to the remarks made above as to clause (2).

Clause (6).—His Excellency objected to the provision for revision which is similar to that in the case of Sivasamudram and Papanasam, and I respectfully submit that some such provision appears to be necessary and is usual.

Clause (7).—With regard to the time required for erection of plant, please see page 24 of Major de Lotbiniere's report in which it was stated that *with good fortune* a 10,000 h.p. installation might be in a condition to deliver power commercially in two years from date of acceptance of tenders and that it would take nine months to get the tenders through. It will take almost as long for a small scheme, and I think three years from date of concession will not be unreasonable

25

to fix for this clause. I have taken 2,000 h.p. as the minimum. The unit adopted at Sivasamudram was 1,000 h.p, but for Periyár Major Lotbiniere recommended, page 2 of flag 2 units of 2,000 Kilo Watts or 2,666 h.p. It will be seen that Mr. Gibbs apparently contemplates starting with a discharge of 80 cusecs for twelve hours which would mean about 80 × 60 = 4,800 h.p. which he would probably install in two units of 2,666 h.p. if, as is probably the case, he holds the same views as Major Lotbiniere. In any case 2,000 h.p. would ensure the installation of at least one unit and may, I think, be accepted as sufficient for the purpose of this clause.

I have, perhaps, fixed this limit somewhat low, but I take it that Government are anxious to get a start made and therefore all possible encouragement is required for a scheme with an intermittent supply. Such a scheme will, I believe, be an experiment of very doubtful success and a small scheme of 2,000 h.p. will soon be given up if it does not indicate that a larger scheme will succeed better.

If the above view is not accepted the minimum limit in clause (7) should be raised as 2,000 h.p. at Rs. 2·88 only means a payment to Government of Rs. 5,760.

An alternative would be to fix another minimum at a later period, say, 10,000 h.p., 10 or 15 years after date of concession.

11. With regard to the rates to be fixed, I am now of opinion that Rs. 5 per h.p. is more than sufficient to charge for a supply which is confined to nine to ten months, but if the supply were made continuous, this charge might certainly be doubled. It will be seen from the correspondence with Professor Forbes that although he was first prepared to pay Rs. 15 per h.p., he afterwards withdrew and this was evidently too much even for a continuous supply.

This charge of Rs. 5 per h.p. may be converted into one million cubic feet as follows :—

From page 1 of Major de Lorbiniere's report, it will be seen that he estimates that power will actually be used for 300 days of 10 hours out of the year allowing for non-working days. On the same basis with Mr. Garrett's proposals and assuming the irrigation season to be $9\frac{1}{2}$ months, the number of working days would be $\frac{9\cdot5}{12} \times 300 = 237\cdot5$, or, say, 240 and the consumption of water per cusec $= 240 \times 10 \times 3{,}600 = 8\cdot64$ million, cubic feet. As 1 cusec generates about 60 h.p. the consumption of water per h.p. will be 0·144 million cubic feet. Therefore at Rs. 5 per h.p., the charge per millions cubic feet will be Rs. 35. Even if the water was used day and night for the whole $9\frac{1}{2}$ months, or, say, 290 days, the consumption would only be 0·418 million cubic feet per h.p. and the rate per million cubic feet equivalent to Rs. 5 per h.p. would be about Rs. 12. This is about two-thirds of the rate now being realised from irrigation which, as I have shown above, is Rs. 17·6.

It would therefore appear that Rs. 5 per h.p. is unnecessarily high for an intermittent power supply (*i.e.*, for $9\frac{1}{2}$ months only) and we might well afford to reduce it to, say, Rs. 20 per million cubic feet actually used. This would, on the basis of 240 working days of 10 hours each, be equivalent to Rs. 2·88 per h.p. or, on the very unlikely basis of 240 days working day and night, 6·91 per h.p.

For water issued for power specially when not required for irrigation, I would adhere to the rate of Rs. 10 per h.p. which, on the basis of 300 days of 10 hours, would come to Rs. 70 per million cubic feet and for a continuous supply of water all the year round if used for irrigation, I would also charge the same rate of Rs. 70 per million cubic feet or Rs. 10 per h.p. which a continuous power scheme could probably afford to pay.

12. As I have already pointed out, the rates which we shall get for our water power will depend upon what users are prepared to pay, but at any rate at the above tentative rate, Government could not lose and when added to the extra revenue for the extension of irrigation which would be possible with the Pambayár scheme, should be sufficient to justify expenditure on that scheme if it is ultimately found to be practicable at all.

C. A. SMITH.
30–5–10.

To Revenue Department u.o.

Rough revised draft conditions.

That water will, for the present, only be available for power during the period when it is issued from the tunnel for purposes connected with irrigation which period at present extends over nine to ten months and water will, on no account, be issued at any other period or at any time specially for the purpose of power.

The water issued as above for irrigation purposes will be charged for at the rate of Rs. 20 per million cubic feet.

2. Should it be found possible at any future time to withdraw the above restrictions and supply water specially for power or should the present irrigation season be extended to cover the whole year, the lessees shall be bound to pay for water specially issued for power or issued throughout the year for irrigation at such rates as shall be fixed by the Madras Government, subject in both cases, to a maximum of Rs. 70 per million cubic feet and a minimum of Rs. 35 per million cubic feet respectively.

3. That Government reserve the right to cut off the supply of water without previous notice at any time when it is considered necessary to do so. Previous notice will, however, be given of the intention to cut off water wherever practicable.

That Government accept no liability for any interruption of the supply from any cause whatever.

4. That no charge be made for three years from the date of the concession.

5. That thereafter for a period of 30 years, a payment at the rates provided in clauses (1) and (2) shall be made to the Government for all water passed through the lessees' works, whether utilised by them for generating power or not.

The lessees will construct at their own expense on plans to be approved by Government all the weirs and other works required to divert the water from the river below the tunnel. The water will be measured by means of Venturi or other suitable meters erected by, and at the cost of, the lessees and approved by Government.

The water used by the lessees shall be returned without diminution in quantity to the river below the works and shall not be contaminated in any way which shall cause it to be unfit for drinking.

6. That at the expiry of 30 years the concession shall cease.

7. That failure to incur expenditure and to erect within three years of the date of the concession works sufficient to generate not less than 2,000 h.p. and failure to utilise this amount of h.p. for at least six months in the year for two years, shall operate to terminate the agreement.

STATEMENT showing discharge through the tunnel and the net revenue due to improvements for the nine years ending 1908–1909.

Year.	Tunnel discharge in millions of cubic feet.	Net revenue due to improvements.
		RS.
1900–1901	19,458	3,02,738
1901–1902	21,983	3,42,312
1902–1903	19,813	3,27,587
1903–1904	21,555	3,54,941
1904–1905	21,057	3,80,565
1905–1906	19,999	3,86,089
1906–1907	17,686	4,21,153
1907–1908	21,100	3,50,655
1908–1909	20,720	3,56,451
Total ..	1,83,371	32,22,491

Average net revenue per million cubic feet $= \frac{32,22,491}{1,83,371} = 17{\cdot}57$ or Rs. 17·6.

27

REVENUE DEPARTMENT.

To Under Secretary—

All the previous communications on the subject issued from Public Works Department (Irrigation), but there seems no objection to the subject being taken up in this department as desired by Public Works Department (Irrigation). Attention is, however, invited to the note of Public Works Department (Irrigation) (at page 13 of the notes to G.O., No. 274 I., dated 28th June 1909) that at the request of the Revenue Secretary the matter was being dealt with by Public Works Department (Irrigation).

2. If it be decided that the subject should be taken up in this department there are a few points which require orders before a draft can be put up.

3. Honourable Member has noted that the value of the concession with the present intermittent supply and its probable enhanced value in the event of a supply being ensured throughout the year should be estimated, if possible. The Secretary, Public Works Department (Irrigation), accordingly estimates the value payable to the Government at Rs. 2·88 and 10 per h.p., respectively, and suggests that if any further information is required it can best be obtained from the Department of Industries. Attention is invited to Public Works Department (Irrigation's) note at page 5 *supra*, in which the value with the intermittent supply was originally estimated at Rs. 5 per h.p. The present estimate is based on the assumption that the number of working days would be 240 of 10 hours each. There is also the probability of the installation working day and night, in which case the value is estimated at Rs 6·91 per h.p. It is difficult to foresee whether the concessionaires will confine the working of the installation to 10 hours every day or work it both day and night. In these circumstances the safest course seems to be to take the mean of the two rates which gives $\frac{2{\cdot}88 + 6{\cdot}90}{2}$ or Rs. 4·89. The value of a h.p. can well be fixed at Rs. 5. This is what the Government obtain from the Cauvery falls. In the case of the Periyár the Government have incurred a very large outlay in creating the falls and there can, it is submitted, be no justification for charging unnecessarily low rates. It would, perhaps, be desirable to consult the Director of Industries in the matter. The rate of Rs. 10 suggested by Public Works Department (Irrigation) Secretary in the event of a continuous supply seems to be fair for the reasons stated by him. He also suggests that these rates be converted into a charge on the quantity of water actually passed through the power installation. The reasons for this proposal are given at page 16 *supra*. The suggestion may, it is submitted, be approved.

4. Public Works Department (Irrigation) Secretary suggests that no charge should be levied for a period of five years. From His Excellency the Governor's note it will be observed that the concessionaires should undertake to complete the erection of machinery within three years and to generate a prescribed minimum quantity of h.p. during the following two years. For the power so generated payment must be made and there appears, it is submitted, no sufficient reason to exempt payment for five years as suggested by Public Works Department (Irrigation) Secretary.

Not necessarily. A free period might well be given. If a total free period of five years were granted, it would be to the concessionaire's interest to start actual work as early as possible.

A. G.C.
23-6-10.

5. With reference to His Excellency the Governor's note that the generation of a prescribed minimum quantity of h.p. should be insisted on for two years after the erection of the machinery, the Secretary, Public Works Department (Irrigation), recommends a minimum of 2,000 h.p. He admits that the limit is somewhat low and his reason for recommending it is that the Government are anxious to get a start made and that all possible encouragement should be given for a scheme which is to work with an intermittent supply. He also suggests that another limit at a later period, say, 10,000 h.p. ten or fifteen years after date of concessions may be prescribed. It would, perhaps, be desirable to prescribe two limits as suggested by the Secretary, Public Works Department (Irrigation). Orders are solicited.

6. The Secretary, Public Works Department (Irrigation), considers that some provision for revision is necessary. This is opposed to the view taken by His Excellency the Governor that it would be rather futile to insist on a revision of the concession.

7. Attention is also invited to the second sub-paragraph of paragraph 7 of Public Works Department (Irrigation) Secretary's note at page 15 *supra*.

P.T.S.
9-6-10.

To Secretary—

Orders are, I submit, required on the points raised in Mr. Smith's note and summarised in the office-note above, before a draft can be drawn up in this department.

2. Mr. Smith says on page 15 above that the arguments in favour of the scheme can best be found by the Department of Industries. I am not quite sure where the Department of Industries is to find them. Messrs. Chatterton and Tressler, the permanent and acting Directors of Industries, are not, I venture to think, likely to be very enthusiastic over a scheme which, if sanctioned, would supersede the one worked out by them. Mr. Garrett gives no information. He says that the energy obtained would probably be almost solely employed in the manufacture of atmospheric nitrate of lime of which it should be possible to manufacture 15,000 tons. As to the number of persons to whom such an industry would give employment and its effect upon the industrial development of Madura he says nothing. If the scheme is to be supported by any but the most general arguments, it seems necessary to call upon the Director of Industries for a report, I submit.

F. NOYCE.
11-6-10.

Demi-official—from the Hon'ble Mr. C. A. SMITH, Chief Engineer for Irrigation.
To—the Hon'ble Mr. A. G. CARDEW, C.S.I., I.C.S., Secretary to Government, Revenue Department.
Dated—Chepâk, the 15th June 1910.

Will you kindly have the accompanying extract put into the notes file and if convenient send the file to Atkinson?

Demi-official—from the Hon'ble Mr. J. N. ATKINSON, C.S.I., I.C.S., Member of Council.
To—the Hon'ble Mr. C. A. SMITH, Chief Engineer for Irrigation.
Dated—the 12th June 1910.

See * enclosed from Garrett. Can you let me know how the matter stands? You might send me the file, if not inconvenient. Would you like an extract from Garrett's letter for the note file? If so, you might take down to the blue line.

* Printed below.

ENCLOSURE.

Demi-official—from A. H. GARRETT, Esq., 5, Gordon Place, St. Heliers, Jersey, C.I.
To—the Hon'ble Mr. J. N. ATKINSON, C.S.I., I.C.S., Member of Council.
Dated—the 9th May 1910.

I expect you have forgotten about my Periyár Power Scheme, regarding which I wrote to you in September and November last. My application for a concession which I sent to India last September still remains unanswered and I can only suppose my proposals are being weighed in the balance with Chatterton's. I have

only quite recently discovered that India is not hostile to my scheme. The discovery rather surprised me as I had been led to suppose Benton did not regard it with favour, and I had got the impression he had a rooted objection to all power schemes whether they interfered with irrigation or not. The Punjab Irrigation Engineers have had more to do with power schemes than Engineers in any other part of India and they are unanimous in preferring irrigation revenue to power revenue and now oppose all power schemes which affect irrigation. This will, I imagine, continue to be the policy of the Government of India, in which case the only scheme they are likely to sanction is one like mine in which power is only developed by the water supplied for crops during the irrigation season.

For three months every year the production of the nitrate would have to cease. Of course having to suspend operations in this way is a great drawback and I do not think, in the peculiar circumstances of the case, Government are at all likely to develop power themselves.

Till my application was sent up it had never been suggested that power for industrial purposes might be successfully developed, even although work would have to be at a standstill for three months every year.

It is about 15 years since the Periyár project was completed and during that time several power schemes have been brought forward and rejected.

During nine months every year about 40,000 h.p. could be developed by the Periyár. How much longer is the country to be deprived of the advantages which would result from a proper application of this power? If the Government of India have definitely decided against all power schemes which affect irrigation and unless Government are prepared to develop themselves you must entrust the work to private enterprise—a course which involves Government in no risk and must prove beneficial.

I know you were sceptical about the ryot caring to pay one price for the nitrate, but if you will make enquiries in the Agricultural department you will, I think, find they bear out what I said.

I know nothing whatever of Chatterton's scheme, but what I feel is that if it affects irrigation and the Government of India have definitely resolved not to sanction such schemes it is only waste of time considering them, and any further delay in utilising the Periyár for power is to be deprecated.

Do you see any prospect of an early settlement and would my going out to India do any good?

REVENUE DEPARTMENT.

In accordance with the suggestion at A in paragraph 9 of Mr. Smith's note, dated 30th May 1910, a revised draft has been made in Revenue and may now go to Public Works department (Irrigation) for acceptance or remarks. I think, however, that if approved it had better issue from Public Works Department (Irrigation), as all the previous correspondence with the Government of India has been from that department.

> I have no objection to this course.
>
> C.A.S.
> 4-7-10.

2. In this draft very little reference has been made to the subject of the possible grant, at some future date, of a continuous supply, because the whole scheme, as now proposed to be submitted to the Government of India, is based upon the assumption that water will not be continuously issued unless a continuous supply can be utilized for irrigation. To introduce into the terms of the proposed concession any reference to the possibility of continuous supply would seem to hold out to the concessionaire the hope of such a possibility being some day realized. It would also be calculated to alarm the Government of India.

3. I would suggest, however, that it would be better if, before addressing the Government of India again, the irrigational possibilities of the Pambayár scheme (referred to in paragraph 2 of Mr. Smith's note, dated 30th May 1910) were worked out, however roughly and approximately. We could then embody the result in

this letter, thus supplying a direct reply to Mr. Thomson's letter No. 2173 I., dated 1st December 1909, and we could say that, in order to meet any possible objection, we proposed that the supply for power should be limited to periods during which water was issued for irrigation. This course would also have the advantage of enabling this Government to satisfy itself, whether, when the Pambayár scheme is carried out, continuous supply could probably ever be given for power without material detriment to the irrigation project. No doubt the investigation would involve some little further delay, but it may prove to be the quickest way in the end. Mr. Garrett is, it is true, worrying every one with reminders, but that does not greatly matter. A concession of this magnitude can't be put through in a day, as he must himself know.

A. G. CARDEW.
23-6-10.

To the Public Works Department (Irrigation) u.o.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

Demi-official—from the Hon'ble Mr. C. A. SMITH, Chief Engineer for Irrigation.
To—A. Y. G. CAMPBELL, Esq., C.I.E., I.C.S., Private Secretary to His Excellency the Governor.
Dated—Ootacamund, the 4th July 1910.

I send herewith the file relating to the Periyár Power Scheme upon which there has been further noting by Revenue Secretary and myself since His Excellency last saw the file.

When I last spoke to His Excellency I proposed waiting till I had worked out data for the Pambayár scheme, but His Excellency told me not to do so and I accordingly noted on the file and passed it on to Revenue.

Mr. Cardew has now made the same proposal independently and if India are to be addressed on the lines proposed in Mr. Cardew's draft I would also recommend that this be done, *i.e.*, that data for the Pambayár scheme be worked out.

I have recently heard from the Superintending Engineer, VI Circle, that the Survey of India have completed their triangulation and I have wired to the officer in charge of the party to find out if he can give me approximate figures for the catchment areas of Periyár and Pambayár. If he can do so I shall be in a position to work out fairly reliable data as to the possibilities of the Pambayár scheme. I do not want His Excellency to pass any order on the file which should go to Revenue Member first but would like him to see the notes before Thursday when I should like to come and see him about it.

His Excellency has given permission for the disposal of the file to be held over until the irrigational possibilities of the Pambayár scheme have been approximately worked out and this is being arranged for. Meantime His Excellency directed me to inform Mr. Garrett and a draft demi-official is accordingly sent to Revenue for acceptance.

C. A. SMITH,
8-7-10.

To the Revenue Department u.o.

REVENUE DEPARTMENT.

Accepted.

A. G. CARDEW.
8-7-10.

To the Public Works Department (Irrigation) u.o.

31

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

Demi-official—from the Hon'ble Mr. C. A. SMITH, Chief Engineer for Irrigation.
To—A. H. GARRETT, Esq., 5, Gordon Place, St Heliers, Jersey, C.I.
Dated—the 8th July 1910.

In continuation of my demi-official of 25th May 1910, I am directed to inform you that the Government wish to defer their reply to the Government of India regarding your application for a concession for the Periyár water power until the possibilities of certain proposals with regard to the diversion of the Pambayár river into the Periyár have been worked out. The consideration of this question is likely to take about a month by which time it is hoped that the Government will be in a position to send a more definite reply to the Government of India than is possible at present.

Demi-official—from A. H. GARRETT, Esq., Barkwith, Tennyson Road, Worthing.
To—the Hon'ble Mr. C. A. SMITH, Chief Engineer for Irrigation.
Dated—the 10th August 1910.

Thanks for your demi-official saying Government hoped to be in a position to give me a definite reply in about a month's time.

I thought Murray had been placed on special duty in order to see whether it was possible to supplement the supply of the Periyár, and had come to the conclusion it was not practicable to do so.

I was in Bournenonth in June and was to have met your brother at the Jopp's house but something prevented his coming.

We have had a vile summer, though at last there seems to be some prospect of finer weather

I am not sure when I shall return to Jersey, so if you are writing to me please address, c/o King & Co., Pall Mall.

Put into Periyár Power Scheme note file.

C. A. SMITH.
29-8-10.

From the Superintending Engineer on Special duty, dated 26th August 1910, *No.* 287-*I.*/216.

To Under Secretary—

Submitted.

M.S.V.
31-8-10.

To Secretary—

Submitted.

J. M. LACEY.
1-9-10.

The alteration in the water level below the falls does not alter the conclusion already arrived at, *i.e.*, that the available fall at these falls for generating power will be materially reduced by the Cauvery reservoir and the final disposal of the latter has to be awaited. No action necessary on Special Superintending Engineer's letter at present.

C.A.S.
1-9-10.

32

To Secretary—

Two detail statements have been worked out, taking the additional approximate supply that we may expect from the Pambayár—

(1) 67,000 acres kodai.
218,000 acres kalam.
20,000 h.p. for 12 hours a day.
With the result that there will be failure—
1898–1899.
1899–1900.
A small failure in 1900–1901.
1904–1905 failure.
1905–1906 ,,
1906–1907 ,,

(2) 60,000 acres kodai.
140,000 acres kalam.
20,000 h.p.
With the result that there would be failure in—
1899–1900.
Slight failure in 1900–1901.
Failure in—
1904–1905.
1905–1906.
1906–1907.

In other years the supply was more than sufficient.

The figures also show that the supply from the Pambayár would not be commensurate with the cost of the scheme, and also that there is in ordinary years a considerable surplus in the Periyár which may be stored and utilised for irrigation extension although a continuous supply for power cannot be guaranteed. As Mr. Benton, the Inspector-General, is expected in Madras in November next, the matter may be discussed with him and Mr. Garrett may be informed with the concurrence of Revenue that a reply will be given to him after the matter has been discussed with the Inspector-General.

The final result may be put down that we cannot guarantee a continuous supply for power without seriously interfering with extensions of irrigation in normal years under the Periyár system.

J. M. LACEY.
15-10-10.

To the Revenue Department u.o.

REVENUE DEPARTMENT.

To Under Secretary—

Submitted that the Public Works Department (Irrigation) may be asked when a reply to the unofficial reference may be expected.

T.S.R.
14-11-10.

F. NOYCE
14-11-10.

To the Public Works Department (Irrigation) u.o.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

Chief Engineer for Irrigation—

With reference to the reminder from Revenue Department, reference is invited to letter R. No. 545 I., dated 3rd November 1910, addressed to the Government of

33

India in which they were informed that the disposal of the Periyár Power Scheme was delayed owing to the necessity for making further investigation in connection with the Pambayár scheme and that it was proposed to consult the Inspector-General of Irrigation on his arrival. Revenue may be informed that the Inspector-General who is now here will be consulted on the subject, and that the subject will be disposed of shortly.

B.G.R.
23-11-10.

S.S.
23-11-10.

H. E. CLERK.
23-11-10.

To the Revenue Department u.o.

REVENUE DEPARTMENT.

To Under Secretary—

For perusal. This may lie over.

T.S.R.
24-11-10.

M.S.
24-11-10.

F. NOYCE.
25-11-10.

To the Public Works Department (Irrigation) u.o.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

Demi-official—from A. H. GARRETT, Esq., 60, David Place, St. Heliers, Jersey, C.I.
To—the Hon'ble Mr. C. A. SMITH, Chief Engineer for Irrigation.
Dated—the 28th October 1910.

I am afraid you have not found it possible to send the report to India which, in your letter of 8th July last, you expected would be ready in a month's time.

I presume that if the Madras Government had no intention of entertaining my application for a concession they would not have allowed more than a year to elapse before giving me an answer.

At the same time it is difficult to understand the delay. The case seems to me to be this. There must be no power scheme which interferes with irrigation. Consequently to supply power continuously, you must have a reservoir in the plains, and an additional source of supply to the upper reservoir. It had, I thought, been definitely shown that the supply of the upper reservoir could not be improved, and so a continuous supply of power is out of the question which was the view taken by India in reviewing the scheme I sent up as Chief Engineer for Irrigation.

Till my application for a concession was made, it had, I believe, never before been suggested that power might be utilised when only supplied for nine months out of the twelve so as not to interfere at all with irrigation.

It seems to me, therefore, that Government had only to decide whether they should carry out my idea themselves, or grant me the concession.

Before applying for the concession I had to get a promise of the financial support necessary to carry out the undertaking, and you will, I am sure, understand that the delay is somewhat upsetting, and that I shall be extremely glad to know as soon as possible what Government have decided.

34

I don't think the power available could be used in a way more beneficial to the country than in the production of a good and cheap nitrate fertiliser.

Demi-official—from A. H. GARRETT, Esq., 60, David Place, Jersey, C.I.
To—the Hon'ble Mr. A. G. CARDEW, C.S.I., Acting Chief Secretary to the Government of Madras.
Dated—the 9th November 1910.

You are aware that the Periyár reservoir has been completed for about 20 years, during which time no use has been made of the immense water power available for the development of electricity.

The Government of India won't look at any scheme which interferes with irrigation.

A scheme to supply power continuously, and which did not in any way affect irrigation, would require a supplementary supply to the Periyár reservoir, and a storage reservoir on the plains.

As far as my information goes it has already been shown by Murray and others that there is no practicable way of improving the supply of the Periyár reservoir, and the Government of India decided when reviewing the scheme I sent up as Chief Engineer for Irrigation that nothing could possibly be done in the way of bringing forward a scheme for the continuous supply of power from the Periyár. I then made enquiries to ascertain whether power for industrial purposes could not be successfully developed, even if it could not be supplied continuously throughout the year.

The result of these enquiries led me to submit an application for a concession to use Periyár water only when it was supplied for irrigation, in other words for about nine months in the year.

We intended to employ the power developed for the manufacture of nitrate fertilisers, as is now being done to a very large extent in Norway.

I thought this would be playing into the hands of the Madras Government, who are now spending large sums in improving agriculture in the Presidency.

It seems to me, therefore, that all Government has to decide is whether they can profitably use the power for nine months in the year themselves.

If unable to do this I don't see what stands in the way of granting me the concession applied for.

But it is more than a year since I sent in my application, and during all this time I have been left completely in the dark.

I feel sure that if the Madras Government had decided from the very first not to grant me the concession, they would not have kept me writing all this time.

But the reason for a year's delay is more than I, and those associated with me, can understand.

Can you lighten our darkness ?

PUBLIC DEPARTMENT.

Please send requisition to Public Works Department (Irrigation) for files regarding the Periyár Electrical Power Scheme.

A. G. CARDEW.
26-11-10.

For Chief Secretary—

The files have been obtained and submitted herewith.

M.V.V.
28-11-10.

35

Telephonic message—from the Registrar, Chief Secretariat.
To—the Under Secretary to Government, Public Works Department (Irrigation).
Dated—the 28th November 1910.

The Chief Secretary wants to see the papers about the Periyár Electrical Power Scheme. Will you kindly send them to me as early as possible ?

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

To Chief Engineer for Irrigation—

The file has been kept with the Chief Engineer for Irrigation to be shown to the Inspector-General of Irrigation. It is not known whether the file can be spared now.

S.S.
28-11-10.

The file is sent herewith. Kindly return it as soon as possible as the papers will have to be shown to Mr. Benton before he goes.

H. E. CLERK.
28-11-10.

PUBLIC DEPARTMENT.

The file may be returned to Public Works Department (Irrigation), with thanks, together with Mr. Garrett's letter to me, dated 9th November. I have told Mr. Garrett that I am transferring his letter to Public Works Department (Irrigation) who will doubtless send him an answer.

A. G. CARDEW.
29-11-10.

To the Public Works Department (Irrigation) u.o.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

The disposal of the letter to India drafted by Mr. Cardew has been lying over until some tables regarding the Pambayár scheme were worked out. These prove that a satisfactory scheme cannot be made out. The letter to India may therefore issue, but attention is invited to proposed modifications at pages 10 and 11 of letter and also at page 14.

It is possible that the ryots of Madura may take to growing sugarcane, and that we may have to send down water for this purpose in the hot weather. It would be well to provide for this contingency. Will Revenue accept this modification ?

H.E.C.
12-11-10.

To the Revenue Department u.o.

REVENUE DEPARTMENT.

To Under Secretary—

Public Works Department (Irrigation) now state that the tables regarding the Pambayár scheme which have been worked out prove that a satisfactory scheme

376

cannot be made out. It is for consideration whether this information should not explicitly be given in paragraph 3 of the draft letter to India (pages 3 and 4 of the draft).

2. The present Public Works Department (Irrigation) Secretary proposes to modify paragraph 6 of the draft letter which makes mention of a remote contingency of a continuous supply being secured by suggesting that it would be "possible that the conditions of cultivation in the Periyár system may so change "that it may be possible to grant a continuous supply throughout the year." What these conditions are have not been mentioned and the suggested modification would seem to be at variance with the opinion recorded by Mr. Cardew in paragraph 2 at page 20 *supra*.

Page 10 of draft.

But see pencil note in margin. It is proposed to insert condition 2 of the original condition.

L.M.W.

3. The modification proposed at page 14 of the draft follows the present suggestions of the Public Works Department (Irrigation) Secretary.

4. The draft order, after acceptance by Revenue, will be issued in the Public Works Department (Irrigation).

Paragraph 1 at page 20 *supra*.

T.S.R.
8-12-10.

P.T.S.
8-12-10.

To Secretary—

If Public Works Department (Irrigation) are satisfied that a satisfactory scheme cannot be worked out for the Pambayár there appears no objection to the fact being stated in paragraph 3 of the draft.

2. Paragraph 6 of the draft may, I submit, remain as drafted in Revenue. The words "if it should ever be possible to grant a continuous supply throughout the year" seem to provide sufficiently for the contingency, at present remote, of the Madura ryots taking to sugarcane and Mr. Cardew has given reasons in paragraph 2 of his note on page 20 above why it does not seem advisable to say more than this.

Pages 10 and 11 of draft.

F. Noyce.
9-12-10.

Honourable Member—

I agree.

Public Works Department (Irrigation) apparently contemplate the contingency of a continuous supply being brought about gradually during the course of the lease owing to changes in the local agricultural practice, *e.g.*, the cultivation of sugarcane. That is to say instead of the works standing idle for 2½ months in the year as now contemplated it will be found that there will be enough water passing during the period of closure to keep a small unit going for a short time. Gradually as cultivation extends and more water is passed down for irrigation, the work will be able to keep the power works going for longer and longer periods.

What likelihood there is of such a contingency happening I do not know, so far as can be seen at present it is remote and instead of inserting a somewhat vague clause such as Public Works Department (Irrigation) purpose—vague because "continuous flow" is not defined, does it mean continuous flow sufficient to keep the whole installation going all the year round? Or would a continuous flow of just sufficient quantity to keep a small unit of 250 or 500 h.p. going be held to justify the imposition of enhanced rate?—it might be better to reduce the period of the lease.

37

It is proposed to give the concession for 30 years only ; there has not, I believe, been such development of second-crop irrigation or change in practice in the last 15 years to justify the belief that within the next 30 years the whole state of things will be changed and ryots will be taking water all the year round.

The Pambayár scheme turns out to be a failure apparently and this might be mentioned in paragraph 3 of the draft.

L. M. WYNCH.
12-12-10.

Paragraph 3.—I don't know what is meant by Chief Engineer for Irrigation's remark "that a satisfactory scheme cannot be made out." I suppose it means that even with the addition of the water of the Pambayár there will not be sufficient supply in the reservoir for continuous irrigation. At any rate I understand that the Pambayár scheme will not put us in a position to supply power continuously. Will Public Works Department please amend paragraph 3 of the draft accordingly ?

2. Mr. Smith proposed for reasons given to omit the last part of paragraph 3. A | Some one else (Mr. Clerk ?) writes "stet" against it, but gives no reasons. I think it should remain. The argument advanced does not detract from the advantage of adding the Pambayár water to the reservoir.

3. There is a passage on page 10 of the draft which I have marked as unintelligible to me. Does it mean that we will charge the concessionaire the same amount as that represented by the charge for irrigation under the project—6 or 8 lakhs or whatever it is ? Please elucidate.

4. Then the passage on the same page beginning "If it should ever be possible" seems to me preferable to Mr. Clerk's pencil alternative draft in the margin. The latter makes the grant of continuous supply (a vague expression as the Revenue Secretary observes) much more within the realm of practical politics, than the typed draft does, and is therefore misleading.

5. I think the draft should definitely refer to the risk of the ryots' interests being sacrificed to those of the concessionaires. I have drafted two paragraphs to go in as paragraphs 7 and 8 at the place I have marked. Please type them and insert, and have a clean typed copy made of the whole draft as I have amended it, and return it to me.

Will Public Works Department (Irrigation) kindly do this through Revenue and furnish the information asked for by Honourable Member ?

L. M. WYNCH.
21-12-10.

6. In regard to the provision for renewal there was long and acrimonious correspondence between Government and Messrs. Harvey & Co. of Tuticorin in regard to their mills at Papanasam (?) in 1903 or 1904. How did that end ? Was a covenant for renewal granted ? I think the then Advocate-General (Mr. Wallis) said such a covenant was almost invariable.

These papers are in Revenue, I fancy. Please have them looked up. So far as I recollect in the renewed lease a covenant for further renewal was inserted.

L. M. WYNCH.
20-12-10.

J. N. A[TKINSON].
19-12-10.

Public Works Department (Irrigation) u.o.

L.M.W.
20-12-10.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

Under Secretary—

Submitted.

S.S.
22-12-10.

34

Joint Secretary—

Submitted for information before action is taken on Honourable Member's note.

J. M. LACEY.
22-12-10.

With reference to Honourable Member's remarks at **A**, page 29, note file, it was I who wrote stet after consulting Mr. Smith on the subject.

H. E. CLERK.
24-12-10.

Office—

Please take action and retype the draft to India.

J. M. LACEY.
30-12-10.

Under Secretary—

The draft letter to India has been retyped and is submitted.

2. As surmised by the Honourable Member, the Chief Engineer for Irrigation apparently intended by his remark "that a satisfactory scheme cannot be made out", that even with the diversion of the Pambayár water into the Periyár it will not be possible to issue a continuous supply of water for power. If approved, paragraph 3 of the draft may be corrected as shown in pencil.

3. With reference to paragraph 3 of the Honourable Member's note, it is submitted that the intention is to charge the concessionaire at the rate of Rs. 20 per million cubic feet for all water issued from the reservoir for irrigation purposes and actually available for power, up to the maximum quantity which the penstock line is capable of passing. Please see pencil addition in the margin of page 10 of the draft.

I have slightly altered the wording, page 10 of draft.

J. M. LACEY.
7-1-11.

Vide also paragraph 7 of the draft conditions on page 17 of the draft.

4. The instructions in paragraphs 2, 4 and 5 of the Honourable Member's note have been carried out.

5. The correspondence referred to in paragraph 6 of the Honourable Member's note is being collected in Revenue.

6. The file may be sent to Revenue with reference to the Revenue Secretary's note, dated 21st December 1910, on page 28 *ante*.

G.V.
6-1-11.

M.S.V.
6-1-11.

Joint Secretary—

Submitted.

The latter part of paragraph 3 of the draft is modified in pencil for approval. It is in accordance with the results arrived at in working out the possibilities of the Pambayár supply.

J.M.L.
7-1-11.

I do not think Deputy Chief Engineer for Irrigation's proposed addition necessary. The paragraph as originally drafted is clearer and should remain.

H.E.C.
7-1-11.

To Revenue u.o. for acceptance of draft letter.

Revenue Department.

To Under Secretary—

With reference to paragraph 6 of Honourable Member's note, dated 19th December 1910, attention is invited to page 191 of the stock file relating to the Papanasam Mills in which the Advocate-General's (Mr. Wallis) opinion is printed. Mr. Wallis, after reciting the substance of the Government orders issued on the subject, pointed out that in his opinion "it never was the intention of Government to limit the concession to" a definite period, but that "Government reserved to itself tne right to revise the rates, not to terminate the concession, at the end of the period." Mr. Wallis concluded as follows:—

"The earlier orders also clearly show in my opinion that the concession was intended to be perpetual subject only to the rights expressly stipulated for by Government. Under these circumstances I am of opinion that the Tinnevelly Company are justified in objecting to the terms of the draft lease and cannot be held to forfeit their rights by refusing to sign it."

The Government in the end gave the Company an assurance that its liberty to use the water after the expiration of the period specified originally will be continued and on the conditions embodied in the earliest orders. The Hon'ble Mr. (now Sir James) Thomson recorded a strongly-worded minute against the order of Government. The lease deed as finally executed is printed at pages 236, *et seq.*, of the stock file and contains a covenant for renewal. Please see at bottom of page 238 of stock file.

Page 192, stock file.

T.S.R.
31-1-11.

To Secretary—

It will be seen that all the trouble in the Papanasam Mills' case arose from the fact that nothing was said about the renewal in the first instance and that the mistake will not be repeated in the present case.

F. Noyce.
31-1-11.

Honourable Member—

The draft has been revised in Public Works Department as directed in Honourable Member's note of 19th December 1910 and is now submitted for acceptance.

In the case of the Papanasam Mill a covenant for renewal was eventually conceded.

Extensive work having been erected, labour collected, housed, etc., in the neighbourhood it is difficult to see how Government could avoid granting the concession.

Irrigation was in no way interfered with. In the case of the Periyar it would probably be equally difficult to enforce a right of re-entry even it should be stipulated for in the lease.

J.N.A.

A reconsideration of the term as to payment for water would probably be the utmost that would be finally achieved.

L. M. Wynch.
2-2-11.

I think the draft is all right now. But of course Public Works Department will submit it to His Excellency.

J. N. A[tkinson].
3-2-11.

Public Works Department (Irrigation) u.o.

L. M. Wynch.
4-2-11.

Public Works Department
(Irrigation Branch).

To Under Secretary—

Submitted that the draft letter may now be circulated to—
(1) His Excellency the Governor,
(2) The Hon'ble Mr. V. Krishnaswami Aiyar, and
(3) The Hon'ble Sir Murray Hammick, K.C.S.I., C.I.E.

G.V.
8-2-11.

M.S.V.
8-2-11.

To Secretary—

Submitted.

J. M. Lacey.
8-2-11.

Circulated to His Excellency the Governor.

The draft letter is self-explanatory and I do not think that any further remarks are required from me.

H. E. Clerk.
8-2-11.

Seen and approved generally. I am not quite sure about the statement on pages 4 and 5. It seems to me to be unnecessarily positive and to rule out "continuous supply" as an impossible contingency. Then again I know nothing as to what the price of the water should be.

How do we arrive at Rs. 20 per million cubic feet?

I have no doubt it is all right, but should like to know how it was computed.

All Honourable Members should see.

A. L[awley].
12-2-11.

To Under Secretary—

Submitted.

2. Please see the Hon'ble Mr. Cardew's note, dated 23rd June 1910, on page 20 of the notes in which he stated that "to introduce into the terms of the pro-"posed concession any reference to the possibility of continuous supply would "seem to hold out to the concessionaire, the hope of such a possibility being some "day realised. It would also be calculated to alarm the Government of India." Paragraph 6 of the original letter was accordingly drafted, but Joint Secretary proposed to modify it by suggesting that "it is possible that the conditions of cultivation in the Periyár system may so change that it may be possible to grant a continuous supply throughout the year—*vide* his pencil entry on page 10 of the original draft. This suggestion was not accepted—*vide* paragraph 4 of the Hon'ble Mr. Atkinson's note, dated 19th December 1910.

3. With reference to His Excellency's query as to how the charge of Rs. 20 per million cubic feet was arrived at, attention is solicited to the statement flagged XIII and Joint Secretary's note on page 16 of the notes in which it is stated that the average net revenue realised per million cubic feet of tunnel discharge for the nine years 1900-1901 to 1908-1909 is Rs. 17·6. The charge of Rs. 20 per million cubic feet was fixed * probably by adding a liberal percentage to the above—*vide* paragraph 1 of the rough revised draft conditions.

* No. See below.

G.V.
16-2-11.

S.S.
16-2-11.

Joint Secretary—

Submitted. With reference to the charge of Rs. 20 per million cubic feet, Mr. Smith has given his reasons for the same in page 17 of note file.

J. M. LACEY.
17-2-11.

Paragraphs 3 and 4 were drafted in accordance with the instructions of the Hon'ble Mr. Atkinson. They state that any scheme for the continuous supply of water for power is, for the present, impracticable. I do not think that this binds the Madras Government for the future.

2. Mr. Smith's calculations whereby a rate for Rs. 20 is arrived at are given on page 17 of these notes, but attention is invited to his paragraph 12 on the same page.

Resubmitted to His Excellency the Governor.

H. E. CLERK.
17-2-11.

Very well.

I accept the draft, though I have slightly modified the phrasing on page 5.

A. L[AWLEY].
19-2-11.

To Under Secretary—

With reference to His Excellency's orders on page 32 *supra*, the draft letter may be circulated to—

(1) The Hon'ble Mr. V. Krishnaswami Aiyar,
(2) The Hon'ble Mr. J. N. Atkinson, C.S.I., and
(3) The Hon'ble Sir Murray Hammick, K.C.S.I., C.I.E.

S.S.
21-2-11.

G.V.
21-2-11.

J.M.L.
21-2-11.

H.E.C.
22-2-11.

I very much wish it were possible for Government to make the installation a State undertaking. The possibility of conflict between the ryot and the concessionaire is so real that the only means of avoiding it is in the State being the controller of both irrigation and the electric installation. If it were possible for Mysore to run the Sivasamudram installation as a State undertaking, it ought to be so for Government to run a Periyár Power Scheme. The terms of any concession must necessarily be based on conjectural estimates and are certain to prove ultimately unprofitable to Government. We cannot settle the terms by competition. Mr. Garrett's position as a former Engineer of Madras gives him facilities for estimating chances of profits which are not available to rival tenderers. If we are not to run the installation as a State undertaking, I approve of the plan of inviting tenders by advertisement.

2. I do not approve of the provision of giving the concession free of charge for five years. I think three years or at the highest four will do. I also think that upon the calculations made the charge of Rs. 5 for one million cubic feet of water let down is too low. The charge of Rs. 5 per h.p. the machinery working for 10 hours each day appears

" Rs. 5 " is a lapsus machinæ—see below.
J. N. A[TKINSON].

to be the rate of payment to Government by Mysore. That works out at Rs. 35 for a million cubic feet of water let down. The calculations made as regards the cost of installation and working and the probable price at which the power will be sold show that Rs. 5 per h.p. or Rs. 35 for a million cubic feet is altogether a fair rate. It was shown by Mr. Smith that if the machinery is worked 24 hours instead of 10, Rs. 12 per h.p.* would not be improper. Even at the reduced rate finally recommended by Mr. Smith, he arrived at Rs. 6 and odd per h.p. for 24 hours. It seems to me that the Rs. 20 rate is based on 10 hours' work which is an unduly favourable assumption for the concessionaire and also on the reduced scale of Rs. 2 and odd per h.p. I would fix the charge at Rs. 35 for a million cubic feet of water or at all events I would fix the minimum charge at Rs. 30.

* Per million cubic feet the charge per h.p. remains the same.

H. E. CLERK.

I don't object.

J. N. A[TKINSON].
3-3-11.

3. I would be sorry to let slip the present opportunity for developing the industrial resources of the country if it be out of the question for Government to undertake the carrying out of a power scheme. The manufacture of manurial nitrates apart from supplying power for lighting Madura or running factories is an inviting prospect, let alone the very doubtful scheme of Mr. Tressler of pumping oceans of subsoil water.

I agree.

A. L[AWLEY].

4. I think there ought to be a clause providing for Government inspection of machinery and works. Meters often turn out so unreliable that, without inspection, there is sure to be the danger of water running down which is not brought into account.

Surely this will be provided for.

J.N.A.

V. K[RISHNASWAMI AIYAR].
2-3-11.

I also should like to see a power station installed and controlled by Government and sooner or later it will come to that. But at present we are only concerned with Mr. Garrett's offer.

I have already approved the draft: but don't object to amending it, so as to charge Rs. 30 per million cubic feet of water.

J. N. A[TKINSON].
3-3-11.

I am sorry, but I strongly object to the paragraphs 7, 8 and 9 of the draft. I object to stating that there will be "unceasing pressure" to relax conditions and that the interests of the ryot must "inevitably suffer". I don't see why they should do so at all. We are a poor Government to confess that we cannot protect our own ryots!

Nor do I like paragraph 8 at all. We can perfectly well secure that irrigation interests shall be made safe, and I think it is quite unnecessary to hold up this bogey of "foreign non-resident capitalists". I think the whole of these paragraphs as drafted—write us down as a Government so feeble that we expect to be bullied by this Company and made to hand over to their mercy the interests of our own people. I don't think we need or should write in this strain.

I especially object to paragraph 9 which takes away all our support to the scheme. The Indian Government is lukewarm enough at present and this cold water will turn them icey and we shall get no concession or any chance of one.

I believe it to be of great importance to get this power used; I believe it will develope Madura district in a way that we have no conception of. I also believe that with good legal advice we should be able to protect ourselves and our ryots from any of the evils my Honourable Colleague predicts, and I think it would be quite enough in this draft to say that if any concession is thought of we must

It is not a question of legal advice, but commercial interests as expressed in home politics.

J.N.A.

take the best advice as to the manner in which the agreement should secure for usefull protection in the interests of irrigation and our ryots' welfare.

I object to this draft which, so far as I can see, can only have one result, namely, that India will drop the whole thing.

It seems to me that we write ourselves down as thinking that no matter what precautions are taken we shall be the slaves of these concessionaires. I see no reason to suppose that we cannot protect ourselves from that position; and I think we show most unnecessary feebleness in prophesying all this trouble.

I hope the drafting of these paragraphs may be amended. I would simply point out the danger involved in the grant of concessions to a big company and say that it is a *sine quâ non* that by agreement we must be amply protected in the matter and given full powers to maintain, and if advisable increase our supplies for irrigation, even if such action diminishes the supply for the purposes of the electric power.

M. H[AMMICK].
4-3-11.

To Public Works Department (Irrigation) u.o.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

Joint Secretary—

Submitted.

G.V.
7-3-11.

S.S.
7-3-11.

The Hon'ble Mr. Atkinson, C.S.I.—
His Excellency the Governor—

H. E. CLERK.
4-3-11.

The origin of the paragraphs to which Sir M. Hammick objects is to be found in His Excellency's note on pages 7 and 8 above, and specially in his remark "that once the concession is given and advantage is taken of it to set up works, etc., there will be constant trouble between the rival claimants for the water, the ryots on one side and the concessionaires on the other."

Surely these notes might have been printed up during the past 12 months!
J. N. A[TKINSON].

2. I admire Sir M. Hammick's courage, but I don't share his confidence that we shall be able to protect the interests of the ryots. Experience is all the other way. Whenever the interests of Government or of the ryots have clashed with any large European mercantile interests the former have had to give way. If the Madras Government had the last word in the matter there would be little cause for alarm; but behind the Madras Government are the Government of India, the Secretary of State and the House of Commons, and the Madras Government will have to do what these higher powers tell them. Jail industries was a small matter, but we had to give them up under coercion. Our beautiful brand new Department of Industries with the weight of all India and the supreme Government behind it went down like a pack of cards before mercantile interests which, so far as we know, were comparatively insignificant. The negotiations in regard to the South Indian Railway

In both these matters a principle was followed, well known and accepted by many. It was no case of a big company frightening us.
M. H[AMMICK].

contract show how utterly powerless the Provincial and Imperial Governments combined are to protect important political interests against one Railway Company. Then there is the case of the cotton excise duties imposed as every one knows against the most energetic protests from India, and only the other day we had the case of the tobacco import duties. The Madras Government then was unable to protect the interests of its own ryots in Coimbatore against those of the Jaffna growers. Now the English tobacco interests—I suppose the Imperial tobacco Company, Messrs. W. D. & H. O. Wills' anti-American combine—have made the Government of India reduce the import duty on tobacco, and that Government is in dread of a home agitation in favour of countervailing excise duties on Indian tobacco, and has begged us to back them against such an agitation!

3. The object of paragraph 9 of the draft is to put the case clearly before the Government of India—to say in effect "If you can and will back us we will go forward with the scheme; if you can't, *i.e.*, if you will yield to any pressure from home, there is no use our going on with it" and that seems to me the safest course for us to adopt. It is much less humiliating for us to refuse to grant a concession because we believe it to be impossible to safeguard all interests, than it would be if after having granted it we had to tell the ryots and all the world that we could not protect them from a group of capitalists. And if we can't protect our District Boards from the South Indian Railway and the Government of India can't protect all India from Manchester what hope have we of protecting the Madura ryots from a syndicate which will probably have a capital of £2,000,000 and include influential men from the whole of England?

But it does not say this at all.

M. H[ammick].

The draft virtually says: "We, the Madras "Government, feel that we shall be quite unable "to protect our ryots against having their "water stolen from them. If you the Govern-"ment of India agree, please drop the whole "thing."

M.H.

We could protect ourselves had we an agreement, binding in law as we can have with any company.

M.H.

4. I think the paragraphs should stand. Even with a guarantee of support from India, I don't think our position is secure; but at least the humiliation of having to yield to home pressure will fall on India, not on us. We might perhaps supplement the paragraphs with a demi-official explaining the position more clearly.

When is any Government at home likely to sanction. Such an arrangement never!

M.H.
31-3-11.

5. I incline to think that we should be well advised to abandon all idea of granting a concession, and in place of that put in our own power station, and sell the electric energy.

J. N. A[tkinson].
15-3-11.

I have so often had to harvest the crop of troubles and harassments which spring up as the aftermath of *concessions* that I have not looked on Garrett's proposals with a very friendly eye and though I am not prepared to say that the paragraphs to which Sir M. Hammick takes exception exaggerate the troubles which are likely to accrue. Yet I do see that they will—I may almost say, *must* deter India from granting any concession to Garrett. I have therefore drafted some alternative paragraphs which perhaps may be acceptable to both Sir M. Hammick and Mr. Atkinson.

If not, then perhaps it will be better to reject Garrett's offer and take up his question of ourselves installing a plant and selling the power for industrial purposes.

I don't quite see why we should put the concession up to tender.

It was Garrett's ideas to utilise the water for nine months in each year, and if the suggestion commends itself to us and we are prepared to accept it, it seems

perhaps rather hard on Garrett to offer his idea to the public for competition. I would therefore omit any reference to submitting the scheme to public tender in our letter to India.

A. L[awley].
26-3-11.

But while we recognise the immense importance of all such schemes from the point of view of industrial progress yet the importance which attaches to the interests of those who depend for irrigation on the Periyár must not be obscured. The present conditions under which the supply of water for irrigation is fluctuating and intermittent are likely to bring these rival interests into conflict. It is true that Mr. Garrett at present recognises the necessity for intermission in the discharge from the Periyár for two or two and a half months every year and acquiesces therein, but it is difficult to believe that, once the electrical works are constructed and experience is had by the concessionaires of the disabilities which must accrue (periodically) from the suspension or withdrawal of the generating power, serious attempts will not be made to bring pressure on Government to relax the conditions which have been imposed in the interests of the cultivating ryots so as to favour those of the concessionaires.

Any sacrifice real or apparent of the interests of the ryots in favour of those of the producers of electrical power cannot fail to cause resentment and thus to effect mischief politically if not economically.

These considerations make it necessary in the event of any concession being granted so to frame the conditions that the supply of water for cultivating purposes is amply safeguarded from any injurious interference by the concessionaires. I am to request that if the Government of India are satisfied that these ends can be secured and the offer which has been made by Mr. Garrett accepted after being made subject to certain conditions, this Government may be informed with the least possible delay of the decision which may be arrived at. It is presumed that the Government of India will themselves make a reply to Mr. Garrett.

A. L[awley].

To Under Secretary—

Submitted.

S.S.
27-3-11.

Joint Secretary—

Submitted. It is regretted that the opportunity of printing these notes was lost.

J. M. Lacey.
28-3-11.

H. E. Clerk.
28-3-11.

Circulated to—

The Hon'ble Sir Murray Hammick, K.C.S.I., C.I.E.
" " Mr. V. Krishnaswami Aiyar.
" " Mr. J. N. Atkinson, C.S.I.

A | Yes, I acccept His Excellency's revised draft. It puts the case quite strongly enough, more strongly than I think really necessary, but it does not speak of a conflict in which our ryots' interests must "inevitably suffer"

M. H[ammick].
31-3-11.

B | I don't object to the modification of the draft. But I agree with the Hon'ble Mr. Atkinson as to the pressure which concessionaires will ultimately be able to bring upon Government. I suppose we shall charge Rs. 30 per million

46

cubic feet. What about the other modification as to the period of concession free of charge which I suggested? I would put in a paragraph expressing a desire for Government setting up the installation themselves. I cannot satisfy myself that Mr. Garrett has any property in the idea of a nine months' current to preclude Government making the installation or others making tenders.

V. K[rishnaswami Aiyar].
1-4-11.

C | I accept His Excellency's amendment of the draft.

D | 2. I have already agreed to Mr. Krishnaswami Aiyar's proposal to charge *Rs. 30* per million cubic feet.

3. I don't think the concession of five years' exemption from charge too much.

4. I don't think the Home Government would raise serious objections, as Sir M. Hammick anticipates, to our having our own power station, in place of granting a concession to private persons. The power station would be, I take it, all contained in comparatively small premises; and would in no sense be a factory. It would be only an accessory to our irrigation works. I can't see any more objection to our selling electrical energy than to our selling water: and it would certainly save complications if we had the power station in our own hands. I should therefore have liked to see some reference to such a scheme as an alternative and preferable arrangement to Garrett's scheme. But if His Excellency and Sir M. Hammick prefer to say nothing about it, I will not press the matter, because the Government of India are pretty sure to think of it.

J. N. A[tkinson].
2-4-11.

To Under Secretary—

Submitted.

G.V.
4-4-11.

S.S.
4-4-11.

Joint Secretary—

Submitted—

(1) His Excellency's amendment has been accepted.
(2) The charge for water will be Rs. 30 per million cubic feet.

The other points to be settled are—

(1) Should the concession be granted for five years free of charge to a shorter period fixed—please see the Hon'ble Mr. V. Krishnaswami Aiyar's note on pages 33 and 34, paragraph 2, and the Hon'ble Mr. J. N. Atkinson's note above, paragraph 3.

(2) Should any reference be made in the letter to India regarding this Government selling up its own electric power plant and selling powers, as an alternative to the proposals made by Mr. Garrett—please see Honourable Member's notes on pages 35 and 36.

The case may be submitted to His Excellency the Governor and the Hon'ble Sir Murray Hammick, K.C.S.I., C.I.E.

J. M. Lacey.
5-4-11.

I am not sure how far I am justified in intervening at this point, but there are two points which appear to me to demand consideration—

(*a*) At page 34 of note file, the Hon'ble Mr. Krishnaswami Aiyar proposes a charge of at least Rs. 30 per million cubic feet of water used instead of Rs. 20 per million cubic feet and I am not quite sure if that proposal is not based on a

misunderstanding of Mr. Smith's calculations (*vide* marginal note at page 34 of note file). Mr. Smith there assuming Rs. 5 per h.p. of machinery installed to be a fair rate works out what the charge would be per million cubic feet of water used, which is a much fairer way of charging as on that basis the longer hours the plant is worked, the greater the payment to this Government. Mr. Smith's rate of Rs. 20 cannot apparently be justified by mathematical calculation, but in view of the maximum and minimum rates Rs. 35 and Rs. 12 worked out by him it seems a reasonable one when the extremely speculative nature of the enterprise and the lack of continuity of supply of water is considered. Comparisons with the Mysore installation at Sivasamudram are obviously inappropriate, since at that place there is a continuous supply and a ready-made market anxious for a large quantity of power.

(*b*) At page 38 of notes the Hon'ble Mr. Krishnaswami Aiyar suggests that a paragraph should be inserted expressing a desire that Government should set up the installation themselves. I would respectfully submit that we have absolutely no information as to what the result of such action would be. The only use which has been suggested at present for the power generated is the manufacture of nitrates for manure. We do not know even approximately what this would cost nor do we know whether time would be an assured sale for the product. If such a proposal is to be put forward it seems absolutely necessary that a preliminary enquiry should be made and an approximate estimate of the results of such a scheme prepared. My own opinion is that it would be unwise for Government to embark on an enterprise of such a speculative character.

This file has been kept back to have the notes printed.

Submitted to His Excellency the Governor.

H. E. CLERK.
26-4-11.

Discussed in Council.

Agreed to leave the rate of payment at Rs. 30 per million cubic feet and to say nothing about Government enterprise.

The draft may issue.

A. L[AWLEY].
28-4-11.

Before sending to press it will be well to type the draft letter continuously, so that there may be no mistake.

H. E. CLERK.
28-4-11.

To Secretary—

As directed the draft letter has been typed continuously. His Excellency's instructions on the original version of the draft letter have been carried out.

2. Please see page 15 of the draft letter regarding draft conditions. Orders are requested whether the portion in brackets should be retained with reference to Honourable Member's remarks on the margin.

B.G.R.
1-5-11.

It should be retained, as His Excellency has presumably seen and acquiesced in Honourable Member's view.

H. E. CLERK.
1-5-11.

[G.O., No. 139 I., dated 6th May 1911.]

486

[G. / 53] 960—16-2-09.

DEPARTMENT

Periyar Power Scheme

~~Address~~ Submitting to the Govt of India remarks on the application from Mr. A. H. Garrett for a Concession for the development of electrical power at Koravanith from the water of the Periyar lake and at Hoogankal from the Cauvery falls.

READ AGAIN G.O., No. ...., dated .... 190 .

" " " " ...., " .... 190 .

READ ALSO:—

C. No. ...., From the Govt of India, No. 2009, dated 30.11.1909.

P.W.D. M
R.O.C. 3027/09 of 22.2.10

" " ...., " " S.E., on Spl duty, " 78 I / 216, " 7.3.1910.

Telegram to the officer in charge No. 19 Survey of India Party

" " ...., " " Bangalore " " 4.7.10 190

Telegram from do 9.7.10

Print

ORDER. No. 139 I, dated 6th May 1911.

139-I

9.8

The following letter will be addressed to the Government of India.

[signature] 23.6.11

To the Chief Engineer for Infn with copy of letter
" Revenue dept

Despatched on 21/7/11

Ex Printer

Print Note

LETTER.

2

49

No. 140-I. D/ 10-5-1911.

To

The Secretary to the Govt. of India
Public Works Department.

Sir,

I am directed to submit the following remarks in reply to the endorsement of the Govt. of India No. 2004 I., dated 30th November 1909, forwarding a copy of a letter together with the Govt of India's reply thereto from Mr. A.H. Garrett in which he applies for a concession for the development of electrical power at Kuravanuth from the water of the Periyar lake and at Hogenkal from the water of the "Smoking Rock" falls on the Cauvery.

page 1. c. file

2. Referring first to the Smoking Rock Falls at Hogenkal, in the Salem District, I am to enclose copies of G.Os. 441-I, dated 9-5-1900 and 1292, d/ 19-11-1904 in which a description of these Falls is given and I am to say that recent investigations have shown

* Flag. I
⊗ " Z

page. 8 c. file

3

Rec

50

11.8

shown that the effective fall at the place in question will be materially reduced by the contemplated reservoir on the Cauvery, proposals as to which ~~will shortly be~~ have been submitted for the consideration of the Govt. of India. with ~~Mr. Clerk's~~ my letter No 386 I d/ 3-12-1910 ~~In these~~ In these circumstances it seems advisable to defer ~~to~~ disposal of Mr. Garrett's application so far as regards those falls, at any rate, until the orders of the Govt. of India on the Cauvery reservoir scheme have been made known.

3. Referring to ~~that part of~~ Mr. Garrett's proposals which relates to the Periyar, I am to invite attention to the correspondence ending with Mr. Thomson's letter No. 2173-1, dated 1st December 1909. In that letter the Govt. of India agreed that the scheme drawn up by Mr. ~~Garre~~ Chatterton for the establishment of a hydro-electric station on the Periyar would not have

1381.

p. 1-2 c. file in L.F. II

4

any prejudicial effect on existing irrigation. They considered, however, that before further steps were taken in regard to the suggested power scheme, its possible effects on future extensions of irrigation should be considered. They invited reference to the notes of the Inspector General of Irrgn: dated 29th March 1906 * and 11th November 1908 ×, and they directed that the irrigational potentialities of the Periyar scheme should be ~~finally~~ fully considered before the possibilities of Mr. Chatterton's power scheme were investigated. With reference to these remarks, I am to observe that this Govt: are not at present in possession of accurate information as to the present catchment area either of the Periyar or of the Pambiyar, which it is proposed to divert into the reservoir. That catchment area is at present --

* Printed in G.O. No. 274-I dated 28.6.09 - J (pp. 2-4)

× Printed on pp. 2-4 of G.O. No. 4-I of 10.1.10 - m

under survey by a party deputed by the Govt.of India Survey Dept and it has been ascertained that the information sought will not be available for some months to come. Moreover even if the additional supply which will be made available by the diversion of the Pambiyar into the reservoir ~~were known~~, ~~the fact would still remain that~~, under existing agricultural practice, ~~XXXX~~ in the Madura District, water would not be required to be issued from the Lake for irrigation during a period of about two months annually. Hence any scheme for continuous supply of power would still involve the issue of water at a period when it was not needed for -- irrigation; and there is no reason to doubt that the water thus issued could, if retained in the reservoir, be utilize later in the year for extensions of the area irrigated.

4. It therefore appears to His Excellency the Governor in Council that from the point of view of the Govt. of India, viz. that the demands for water for irrigation must take precedence of any demand for power and ~~th~~ that water must not be sold for power instead of for extension of irrigation, there is no prospect of any material change in the present position being brought about by extension of the catchment area or of supply. His Excellency the Governor in Council is therefore of opinion that the introduction of any scheme for the continuous supply of water for power must ~~be~~, for the present, be regarded as a very remote contingency if not altogether impracticable, and that the first condition of any concession which may be granted for the use of the power supplied from the Periyar should be that water will not be at the service of the concessionaire except during those periods of the year in which it is issued for irrigation

irrigation purposes, at present about ten months annually, the Government reserving to themselves the full right to cut off the supply at any time should it be found necessary to do so in the interests of irrigation.

5. The grant of such a concession would probably have a considerable effect on the industrial ~~effect on the~~ development of the Madura District. One of the Resolutions of the Industrial Conference which was held at Ootacamund in September 1908 and a report regarding which was submitted to the Govt. of India in Revenue Dept. letter No. 4294, dated 3rd March 1909, was that the possibility of utilising the water power available in the Presidency, for the generation of electricity or other industrial purposes should be investigated. Subsequent to the Industrial Conference and in accordance with one of its Resolutions, this Government

appointed a small Committee including Dr. Morris Travers, Professor Rudolf and Dr. Hay of the Indian Institute of Science, Bangalore, Mr. Harrison Agricultural Chemist, Major Miller, then Chemical Examiner and other experts to investigate the Chemical industries of this Presidency and one of the Resolutions adopted by this Committee expressly approved of the supply of cheap electric power as tending to stimulate the development of Industries generally, including those affecting Chemistry. In forwarding this Resolution the Committee remarked that the utilization of the water power available in this Presidency would undoubtedly be an important factor in encouraging Industrial enterprises. In this view this Government agree and consider that provided due safeguards are taken to prevent prejudice to the important irrigation interests for which the

G.O. 203 Rev / 26.1.09. Flag E

G.O. 3427 Rev / 14.12.09. Flag F

Periyar system primarily exists, no obstacle should be placed in the way of the utilization of the power available in the Periyar water for generation of electricity to be devoted to industrial purposes. If, as Mr. Garrett seems to contemplate, the concession for which he applies would be used for the manufacture of manurial Nitrates, the supply of such manure at a price ~~which~~ within the means of the cultivator might have an important effect on the improvement of agriculture and might indirectly promote the progress of the Periyar scheme as an irrigation work by supplying the manure required for second crop cultivation. Even if the concession were utilised for other purposes, it would involve the employment of a considerable amount of labour in the district, as well as a considerable capital expenditure.

57

18.8

6. Assuming that, subject to the limitation indicated in paragraph 4, the grant of a concession for the utilization of the Periyar water power, is held to be admissible, there are -- certain further conditions which H.E. in Council regards as necessary for the protection of the public interests. Prominent among these would be a -- stipulation that the actual development of the concession shall be commenced within a period of one year from the date of the articles of agreement and that failing such commencement, the concession shall become void. On the other hand in order that the Concessionaire may have reasonable time in which to bring his enterprise to the productive stage ~~xx~~ it would seem fair that no charge should be made on -- account of the concession for a period of five years from the date of the - articles of agreement. If, however at

1351

u

58 10 19c P

No. 139-40 I.

6th May 1911.

the end of three years from that date, the Government should be satisfied that reasonable progress had not been made with the works for the utilisation of the power, they should have power to impose from the end of the third year, a charge equal to that leviable in respect of the full quantity of water (available for power, that may be) passed out of the lake for irrigation purposes. As regards what that charge should be, H.E. in Council would suggest that under the present conditions of discontinuous supply, it should be fixed at the rate of ~~Rs 20~~ Rs 30 per million cubic feet of water supplied. If it should ever be possible to grant a continuous supply throughout the year, this rate would be insufficient and would have to be re-considered; but as no such continuous supply can, under the decision of the Government of India communicated in Mr. Thomson's letter No.2173 dated 1st December 1909 be made for many years, it is unnecessary at present to take such a contingency into account, as, were it to arise, any agreement drawn up on the basis of existing conditions would have to be terminated and an entirely new agreement drawn up. In such an event it would probably be possible to raise the charge to double or treble the figure now suggested. Any concession

Rs 30?

p.p. 1-2 c. file in L.F. II

12

concession now to be granted may be for a period of thirty years but there should in the opinion of this Govt be no provision for any renewal at the end of that term as it is undesirable to fetter, in any way, the discretion of Government in regard to such renewal. Failure on the part of the concessionaires to utilise the water for the generation of electrical power for six months in any consecutive period of two years, after the expiry of the initial free period, should operate as a cancellation of the concession. Other conditions as to erection of works, maintenance of meters, and the like should be provided.

Inspection of Machinery

7. The above conditions which, with others of less importance, have been set out in detail in the enclosed note constitute the ~~principle~~ principal terms which the Governor in Council considers should be laid down as the basis of

of any concession for the development of electrical energy from the Periyar water. But while we recognise the immense importance of all such schemes from the point of view of industrial progress yet the importance which attaches to the interests of those who depend for irrigation on the Periyar must not be obscured. The present conditions under which the supply of water for irrigation is fluctuating and intermittent are ~~xxbe~~ likely to bring these rival interests into conflict. It is true that Mr. Garrett at present recognises the necessity for intermission in the discharge from the Periyar for two or two and a half months every year and acquiesces therein, but it is difficult to believe that once the electrical works are constructed and experience is had by the concessionaires of the disabilities which must accrue --

(periodically) from the suspension or withdrawal of the generating power, serious attempts will not be made to bring pressure on Government to relax the conditions which have been imposed in the interests of the cultivating ryots so as to favour those of the concessionaires.

8 Any ~~of~~ sacrifice real or apparent of the interests of the ryots in favour of those of the producers of electrical power cannot fail to cause resentment and thus to effect mischief politically if not economically.

9 These considerations make it necessary in the event of any concession being granted so to frame the conditions that the supply of water for cultivating purposes is amply safeguarded from any injurious interference by the concessionaires. I am to request that if the Government of

62

238

India are satisfied that these ends can be secured and the offer which has been made by Mr. Garrett accepted after being made subject to certain conditions, this Government may be informed with the least possible delay of the decision which may be arrived at. It is presumed that the Govt. of India will themselves make a reply to Mr. Garrett.

H.L.
2/5/11

I

1321

6/5/11

Documents accompanying:

1. Draft Conditions
2. Copy of G.O. No. 442 I / 9.5.1900
3. Copy of G.O. No. 1292 I / 19.11.1904.

A.C. sent 21/7/11

B.D.
1-5-11

16

15 63 24-8-11

G.O. No. 139-40 I., dated 6/5/11

Draft conditions to regulate the supply of water for power purposes at the Periyar.

(1) No guarantee of any definite supply of water is given by Government and Govt. -- accept no liability for any interruption of supply from any cause whatever.

(2) No water will be supplied except during ~~ccc~~ the period during which it may be issued for purposes connected with irrigation.

Note.-At present water is issued for irrigation for about ten months in the year.

~~Should it be found possible at any future time to withdraw the above restrictions and supply water specially for power or should the present irrigation season be extended to cover the whole year, the Lessees shall be bound to pay for water specially issued for power or issued throughout the year for irrigation at such rates as shall be fixed by the Madras Govt. subject in both cases to a maximum of Rs 70 m.c.ft. and a minimum of Rs 35 per m.c.ft. respectively.~~

A 135 (i)

(3) The Govt. may at any time without notice reduce or cut off the supply of water, ~~should it be necessary in their opinion to do so in the interests of irrigation.~~

I shd. be inclined to omit these words so as to leave Govt. unfettered

The omission is sure to frighten the concessionaire. The words "in their opinion" sufficiently protect Govt.
M
28.2.11

(4) No charge on account of the concession will be made for a period of 5 years from the date thereof as hereinafter provided.

(5) After the expiry of the period of 5 yrs. from the date of concession above referred to, all water used for power will be charged for at the rate of ~~Rs 10~~ Rs 30 per m.c.ft.

(6) Should the concessionaire at the end of the 12th month from the date of concession

not have commenced to erect the works ~~for~~ for the utilization of the power referred to in the concession, the concession shall become null and void.

(7) Should the concessionaire at the end of three years from the date of concession not have erected works sufficient to generate 2,000 horse power, to the satisfaction of Govt. he shall be liable to pay from such date a charge at the rate of ~~20~~ 30 per m.c.ft for all water issued from the reservoir for irrigation purposes and actually available for power, up to the maximum quantity which the penstock line is capable of passing.

(8) The concession will hold good for 30 yrs. and no stipulation for the renewal will be included therein, the question of any such renewal having wholly and entirely reserved for the consideration of Govt.

(9) Should the concessionaire at any time during the continuance of the concession ~~xxxxxxxx~~ and after the expiry of the free period of 5 years fail in any two consecutive years to utilise for six months in any one

165

26.8.88

one year the minimum amount of 2,000 horse power the Government may terminate the concession.

(10) The concessionaire shall provide, construct, and maintain at his own expense and in accordance with plans to be approved by Govt. all weirs and other works required to divert the water for power purposes.

(11) All water taken for power purposes shall be ~~provided~~ measured by means of -- Venturi or other suitable meters which shall be provided, erected, and maintained at the cost of the concessionaire, and in accordance with plans which shall be approved by Govt. The meters and machinery shall be open to inspection by any authorized Government officer

(12) All water measured by meters aforesaid shall be paid for by the concessionaire at the rate of ~~20~~ 30 per m.c.ft. irrespective of whether such water is actually utilised for generating power or not.

(13) All water supplied to the concessionaire shall be returned without dimimution in quantity to the river below the works and

19

18 66 27

shall not be contaminated or in any way so altered as to render it unfit either for drinking purpose or for irrigation purposes

(14) In the event of any dispute regarding the terms or interpretation of this agreement the dispute shall be referred to the arbitration of one of His Majesty's Secretaries of State not being His Majesty's Secretary of State in Council.

20

4480/R1/75

~~2072/75~~